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Special Feature This Issue
"Water Trails for the New Millennium"
"Crab Claw Cat" - "A Picnic on Lake Champlain",

messing about in **BOATS**

Volume 19 - Number 15

December 15, 2001

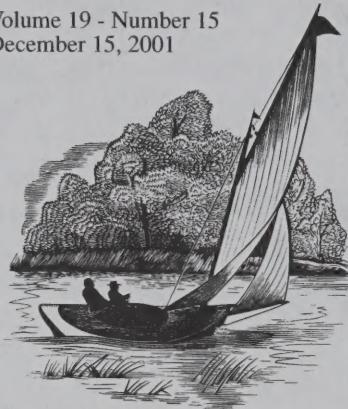


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2001

messing about in **BOATS**

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Looking Ahead...

John Potts is well underway in Part 3 of his "Circumnavigation 2001" serial; and Mark Steele suggests one modest way of carrying on with our recreational activities in "Getting the Little Boats Going".

Gary Vaughn brings us Part 3 of his ongoing project report, "Gary Ann & Grendel"; Francis Walter concludes his two part series on "The Florist's Pirogue"; and Dan Taylor reports on "Launching a Perfect Skiff".

We'll have an old Weston Farmer article on "The Old Elco, Symphony in Wood"; John Tuma discusses "Making Changes to a Design"; Berk Eastman presents his unusual houseboat design in "The Cape Codder Story"; Phil Bolger and Friends offer a nostalgic looking English launch in "Windemere"; and Dennis Davis concludes his design series in Part 12 of "Back to the Drawing Board".

Mark Fisher discusses "Trying Out the Rudder"; Robb White tells us "How to Make a Fiberglass Rudder"; and Herman Buttner details his technique for "Faster, Accurate Rib Nailing".

On the Cover...

Fred Shell's latest design, CrabClaw Cat, afloat and sailing after two years of development. We report on our recent visit with Fred in this issue.

Commentary...

Bob Hicks, Editor



Finishing off another year with this December 15 issue I thought I'd go back through the 24 issues to gain some overall view of what sort of boating tales we have been able to bring you. Publishing 24 issues a year breaks the task up into small enough units that the overall scale is not readily apparent to me. Well, it took me a couple of hours to list all the feature articles we have published since last January 1, and this did not include the 48 pages of letters you wrote to us, nor my 24 columns on this page. A lot of messing about in boats information has appeared, a lot.

We get to enjoy all of this chiefly because so many of you participate by writing of your messing about activities for us. I get to mostly just edit, that is I choose and organize contents for each issue from the input from you. Occasionally I actually write something up, of course, but the growth of reader participation in supplying content is what has made the magazine so successful in serving our collective interest. The variety of experience and opinion makes for lively reading, issue after issue. As editor I prefer to leave your writing as you write it, and not subject it to a "style", and thus avoid the homogenized writing one often encounters in journalism today.

During 2001 we brought you 52 adventure tales from 45 writers, with three of these two part serials, one a three part serial, two in four parts, and one in five parts. This proliferation of serialized articles continues a trend that has developed over the past couple of years, many of you have a great deal to tell us and I want to give each all the space it needs.

We had 32 events reports from 22 writers, gatherings of one sort or another, on the water and off, big boats and small, a few races, a few shows, many just messing about gatherings. Again the variety enhances the interest, not only the variety of types of activity but also the variety in writers' viewpoints.

Designs were a major topic, 36 articles from 31 writers. In response to a reader inquiring why we did not have more on designing itself, I urged those so inclined to contribute and we ended up with one 12 part series and another in 11 parts on design concepts and theory, with another longish series soon to start in this new year. The information is out there, apparently, if we ask for it.

Project reports totalled 37, from 32 writers. One project required two installments, another three (and counting). Scope ranged from skiffs to historic square rigger replicas. Again, so much variety.

We had 16 articles I lumped under "Tech-

niques" for all the odds and ends of how to make things do what one wishes, from 16 writers, one each.

Not included in the above accounting were the 24 design features from Phil Bolger & Friends, our longest running series by far (since 1988), nor the 21 stories from Robb White which range all over the subject.

Book reviews have gotten better established, because of my policy of farming out the review copies to interested readers for review, we were able to publish reviews of 26 books last year, from eight reviewers, with John Hawkinson turning in seven and Bennett Wilson six. Ben was on a roll until he apparently suffered a massive heart attack (he was 80) while sailing in his homebuilt sloop and fell overboard undetected. About two dozen books are currently out in reviewers' hands so our "Reviews" look promising for the coming season.

The Safety page, long pretty much up to reliable Tom Shaw, blossomed out with contributions from several other readers, in particular Dave Carnell and Bob Whittier. How much can be said about small boat safety? A lot I guess, so keep it coming.

Mark Steele keeps us informed on model boating from his home base in New Zealand with his down home "windling", derived from his own publication, *Windling World*.

Last year I began publishing more articles from various newsletters we receive from clubs and organizations. We featured material from 19 such newsletters, with Vermont's Lake Champlain Maritime Museum providing four articles, focussed on their marine archeology program which has grabbed my fancy. Most such newsletters go to limited readerships affiliated with each organization, but the content is often of much interest to the rest of us, so I ask for permission to broaden their reach while also informing you of what they are up to, a nice arrangement I think.

So thank you all who have made these contributions to our little magazine, you have made it what it is. And I encourage you to continue to share your experiences and views with us all. We have no "requirements", just write what you want and send it along in any format you can supply, even handwriting (legible). We want to hear from any of you who have something to say relevant to messing about in boats. While we welcome the continuing participation of our "regulars" the input from ever more writers will continue to broaden the appeal for us all.

"Them were the days . . ."

The Elco FLEET



The 50-foot twin screw cruiser
with two 125 hp. Elco F62 engines
\$26,500



The Marinette, a 26 footer
with a 6 cylinder Elco-Gray
engine. 40-45 hp. \$3475



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75 hp. Elco-Buda
engine \$5750



The popular Elco Cruisette is a
35 footer with a
115 hp. Elco-Buda
engine \$7750

The sturdy Elco 38 footer
has an Elco 6 cylinder engine
which develops 125-145 hp.
\$11,850



You write to us about...

Adventures & Experiences...

A Really Touching Boat Story

A 130' fireboat that was built in 1931 and decommissioned in 1995 I believe, because she was becoming too expensive to maintain, was sold to a group of historical boat buffs who kept her afloat and in operating condition here in New York city. On the morning of September 11th they all dropped what they were doing, went to the boat, and went down to Battery Park. The hydrants in the area were obviously not operating, and the old boat, along with newer smaller fireboats, provided much of the water at the disaster scene. Her captain of many years was at the helm, a really touching boat story.

Boyd Mefferd, Canton, CT

A Long & Happy Life

Nearly ten years ago, I purchased from you a plans-built tandem sea kayak. Built of wood and used once by the builder, this first time project was sold to you. You painted it a dark blue, using a tough marine quality paint, and sold it to me including two "water clubs", cheap aluminum paddles.

Now, years later, the tandem, known locally by those who have paddled her as the *Blue Goose*, has carried paddlers on many seal watching trips in winter and full moon paddles in summer. The *Goose* has introduced adults and children to sea kayaking and shoreline wildlife here in southeastern Connecticut. She has been car-topped from the flat Housatonic River, to surf in Narragansett, Rhode Island, to Casco Bay in Maine. Thank you for a great find, paint job and sale. Perhaps, if you remember that first-time-builder, you will let him know his "project" is enjoying a long and happy life.

Gayle C. Smith, New London, CT.

Bahamian Moor

I really enjoyed Robb White's stories of the effectiveness of the Chinese sort-of-Bruce anchors when set in a Bahamian moor. For most purposes in the Chesapeake, it's not worth the trouble, but in strong reversing flows, like narrow, long tidal estuaries, it can come in handy. A Danforth doesn't react well to being dragged around 180 degrees, and in a hard or foul bottom, may not set itself.

It can cause its own kind of trouble, however. One time I felt the need of the security was when anchoring off Chestertown on the 4th of July. The river in front of Chestertown is fairly narrow, but it is a tidal estuary that winds most of the way across the Delmarva Peninsula, and there's quite a bit of force (for the Chesapeake) in its current there. Just upstream of the anchorage is a low highway bridge, and the assembled multitudes were crowding the limits of where a boat could fit.

I reasoned that the best thing I could do was to stay in one spot, so I laid out a pair of anchors up and down stream. They held beautifully. The threatening thunderstorms never arrived, the fireworks were wonderful, and all hands laid below for a quiet night's sleep. It was very calm. Really, it felt like the boat was

on its poppets in the yard, though I knew we were safely anchored in the deepest part of the river.

When I woke early the next morning, there was no motion. I gently sat up, so as not to disturb the quiet, and looked out the port. All I could see was white fiberglass, about 8" away. We were resting, very calmly, tight against another boat!

I went topside, and realized that we hadn't dragged, but that the entire anchorage was now hanging the other way from their anchors. Our "upstream" anchor was actually under and athwart our neighbor's hull!

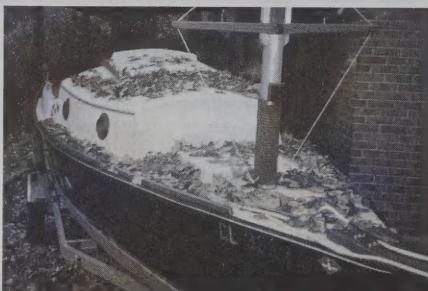
I gently let out rode, sliding back away from our friend, and once we were clear, pulled up the "lazy" anchor, then hauled up to the "upstream" one, keeping well clear of our friend until we had a clear shot to make our way out of the anchorage. We never saw a sign of life in our "friend".

Mark Fisher, Takoma Park, MD

Season's End

Pictured here is my HMS (his modified sailboat) *Amenity PMT* (poor man's trawler) in late fall.

Bill Zeitler, Wilmington, DE



Opinions...

Don't Stand a Chance

Herewith a quote from the October, 2001 issue of *Boat & Motor Dealer* magazine:

"Throughout the years as the traffic on Lake of the Ozarks has increased and the boats have gotten bigger, so have the waves. It's not uncommon to see two or three foot chop on the water on a weekend. With water that big boats under 29' feet don't really stand a chance."

Robb White, Thomasville, GA

Projects...

Thanks Dave

I have recently completed a Bolger Featherwind, alias Nutmeg, aka "\$200 sailboat". As regular readers of this magazine know, Featherwind is an old (early '70s) Bolger design for a 15' flat-iron skiff which has been resurrected by Dave Carnell, who simplified the construction and adapted the rig to take a drop-in Sunfish type mast and latticed sail. A growing number of Featherwinds have been built to the Carnell plans. While the boat has a pointed bow and 15 degrees of flare, she

is along the way toward current Bolger Box thinking. If you took an elevation view drawing of Featherwind and lopped a few feet off bow and stern, you would be looking at a Bolger Brick or stretched Tortoise.

The Carnell version is extremely easy to build, instant boat style, with exterior chines. The rig requires only a mast partner and step and a sheet-horse across the tiller, and a cleat to take the halyard; no stays or other rigging are required. The boat rows very well; not fast, but her high rocker keeps the bow and stern out of the water and she is a low effort boat up to around 3 knots. The decent rowing capability and the extremely simple rig make her convenient to row when the wind goes down (or up, there is no way to reef a Sunfish rig).

Under sail she is a delightful performer, very lively with the lateen rig, very dry and comfortable. I added sealed bow and stern compartments, with screw-in ports for access, these make her self-rescuing. She can easily handle a 600lb load and is ideal for a small family.

The unique feature of the boat design is the clarity of the plans. Mr. Carnell has made them as close to stupid-proof as possible, there is no puzzling over these plans, scale rule in hand. I wish I had had plans like these for my first boat.

To my eye, Featherwind makes a pretty boat. It is hard to imagine a more rewarding way to invest a few weeks of after-work effort.

Thanks, Dave.
Sam Glasscock, Lewes, DE

Last of the Readable Boat Magazines

I've been meaning to write to tell you that you are the last of the readable boating magazines. The others are all courting the mega-yacht market. The latest issue of *Multihull* describes a new 28' trimaran, and winds up saying that it is "competitively priced at \$95,000"! For a 28' boat? Even *WoodenBoat* has many more articles than I care to read about multi-million dollar projects creating or recreating glorious wooden boats for our ruling class.

Anyway, before curmudgeonhood reduces me to babbling about the good old days, I'm getting the plans for Sam Devlin's beautiful little garvey and cleaning out my garage for a new building project.

Joe Gold, Southold, NY

Information of Interest...

State Park Promotion

A statewide event to promote Texas parks, fish hatcheries and wildlife management areas was held here on a recent weekend. During the weekend, no entry fees were charged at any state park. In our area, a 15 mile kayak/canoe race, from Rockport to Port Aransas was held, as well as free paddling tours, a no-motor fishing tournament, and fly fishing clinics using kayaks and canoes instead of the usual motorboats. Bill Harvey of the Texas Parks & Wildlife's resource protection division said, "the number of people kayaking has doubled in the last 5 years and is growing fast. It's also recreation that won't scar the fragile marshlands."

John Benton, Corpus Christi, TX

Quiet That Fuel Tank Guage

When riding at anchor or tied to some pier, a restful slumber is aided by a variety of boat-related sounds; the creak of mooring line or rode as it rubs against a chock, the sometimes musical sound of halyards against a wooden mast, or the chuckle of wavelets

against the hull. This year I discovered another sound at quite the opposite end of the enjoyment spectrum.

A 3-gallon fuel tank (one of those red, plastic jobs) for a recently completed boat is located in the cockpit close by the cuddy bulkhead. The tank cap is equipped with a fuel level

gauge and the float clatters about in its housing in a most dissonant and arrhythmic manner at the slightest disturbance of the fuel. A search for a gaugeless cap has been unsuccessful as has the discovery of a safe and effective permanent solution.

After study of the mechanism, it was seen that a narrow slot extends through the center of the float and acts as a gate for a gently spiraled piece of vertical flat stock that functions as the level indicator-- as the float changes position up and down, it twists the flat stock which moves the gauge pointer. In desperation, I firmly inserted a 2-1/2" #10 bronze screw into the float slot, which effectively silences the rattle. Now, if I just remember to remove it while using the motor, or it doesn't fall off into the bottom of the tank...

If anyone else has been annoyed by this clatter and has conquered it, I would be most pleased to hear of your solution. This is a 16' boat with no room for a tank housing or locker or dinghy in which to place it during the night and don't suggest putting it on the pier where some drunk might kick it.

Bruce W. Given, 1504 Lake Christopher Dr., Virginia Beach, VA 23464, <bgiven@exis.net>

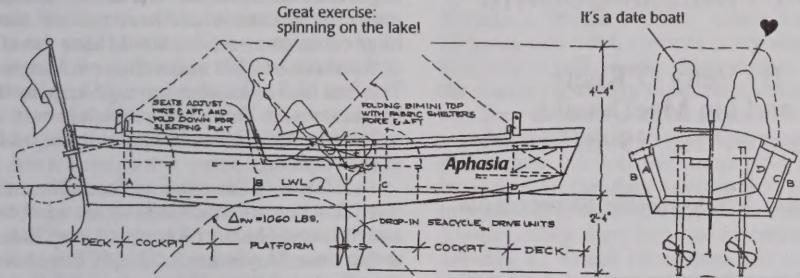
Adaptive Pedal Power at CWB

The Center for Wooden Boats provides accessible, companionable boating for fun and exercise with a magic, adaptive, wooden boat, which glides along using pedal power, no oars, paddles, sails or motor on South Lake Union, Seattle's prime fresh water recreation location.

Take short trips to restaurants, parks, swimming holes, ship building sites, houseboats, city views and sunsets exercise while you sightsee! Safe, stable and simple to learn. The boat was designed by Philip Thiel, Seattle naval architect.

The Center for Wooden Boats is an educational facility, dedicated to preserving and promoting traditions of classic wooden boats in Seattle.

The Center for Wooden Boats, 1010 Valley, South Lake Union, WA. (206) 633-2017.



Information Wanted...

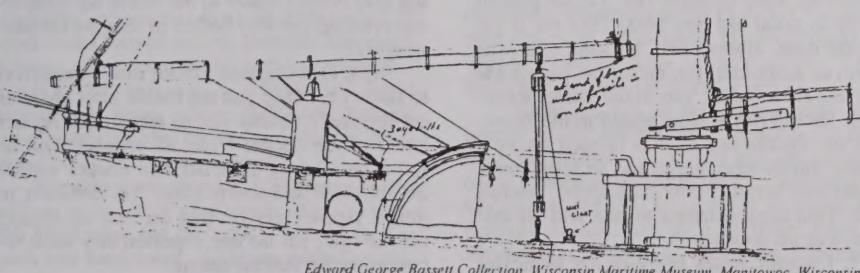
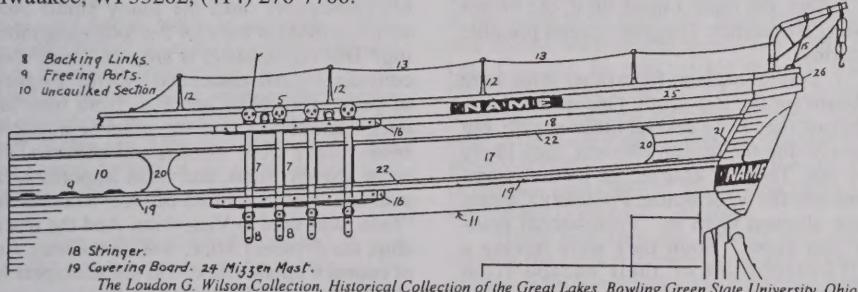
Great Lake Schooner Book

We are beginning to put together a book on Great Lakes commercial sail and are looking for contributors. Loudon Wilson began writing a book on Great Lakes sail, which included many fine drawings of the designs and details that made Lake ships different. Fortunately he donated the unpublished manuscript to Bowling Green State University in Ohio and we have approached them about using it as a backbone for a book.

Also at the Wisconsin Maritime Museum there is a collection of sketches done by Edward George Bassett of different details on schooners. We are looking for people interested in helping us put together a book that will cover the history, usage, construction details, rigging, etc. of Great lakes sail.

Please contact the undersigned if you can help.

Rob Stevens, 557 W. 5th St., San Pedro, CA 90731, (310) 831-4202, <robcstevens@hotmail.com> or Jeff Phillips, Wisconsin Lake Schooner, 500 N. Harbor Dr., Milwaukee, WI 53202, (414) 276-7700.



How to Build 20 Boats

Cleaning out my desk I came across your January 1, 1998 issue opened to page 24 at an article, "How to Build 20 Boats". In the article you offered to make copies of the index for those of us who lived through those days (I am pushing 81). If you are still doing this good deed I would like a copy of the index and if available, the source for the plans published in the book.

Don Dressel, Highland IL.

Editor Comments: We no longer have this information, can any readers help?

To Build a Mini Tug

I'm about to start building a mini tugboat designed by Berkely Eastman and your name was mentioned in materials I received from Berkeley Engineering Co. as a source of information for the backyard boatbuilder, and I qualify for that.

Messing about in boats is something I take pleasure in and your title is what attracted me to you. Can any readers supply information or help on building Berkeley's Candu-EZ mini tugboat? I hope to begin work on the project this winter.

Paul Sipe, 32773 Hawk Ave., Elkport, IA 523044, (563) 245-2319

Sportboat Rig

I have acquired a Sportboat, Model G-155, Serial #874. It rows and powers fine but I notice a mast step fitting and what looks like gudgeons on the transom. Can anyone tell me what the sail rig, mast step, rudder, and leeboard may look like?

Scott Shepard, 5491 Cedar St., Manchester, NH 03103

Similar in tone to *A Night to Remember* about the *Titanic*, by Walter Lord, published in 1955, but predictably this newer book of 1998 is not as artful. Both stories are about famous ships that sank with terrible and tragic loss of life, but the *Titanic* had many survivors, hence a record, and lots of stories from which to build a book. The *Sophia* had about 350 people on board (they're not sure exactly how many) but no survivors, save one dog. *Sophia* was run upon Vanderbilt Reef in Lynn Channel coming south from Skagway on October 23, 1918 about 0300 in a snowstorm.

She was washed and blown off the reef and sank in deeper water in a wind storm at 1900 on October 25th and all 350 were lost. Neither was the *Sophia*'s logbook ever found. Further, the Canadian Pacific Company actually suppressed the facts and records of the disaster. (Why bother old chap? They're all gone you know.)

The CP Co. did launch a diving expedition to the hulk in November 1918, which was not very deep, about 75', but they were more interested in retrieving some \$130,000 in gold from the wreck than counting the bodies (gold is worth more, you know). The divers got the gold, but inexplicably they recovered only one body. It was not until May of the next year that they took another look and found 85 more cadavers inside the ship! The rest of the victims were found washed up on shores downwind.

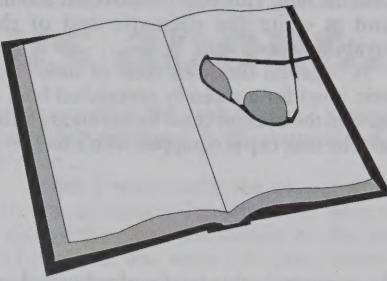
The actions of the Canadian Company in 1918 shed some bright light on the Victorian culture and the values of the time. The "stiff upper lip" mentality included taking your losses, and quietly. Such a value system must be hard for modern democratic and litigious Americans to understand. We would make many Federal cases out of a mismanagement of such a disaster today. They managed to brush it off after a few embarrassing news reports were published.

There was a proper governmental investigation, but it amounted to a whitewash. Their bottom line (pun intended) was: It was a "Peril of the Sea;" i.e., an Act of God. Hence case closed. Period. The CP Co. got \$250,000 insurance money for the *Sophia*, families of crew members got the minimum compensation, and relatives of the deceased passengers got nothing. The Victorians were tough.

One of the best aspects of this book is what is not said, but what comes to mind as one reads it. Here is a great mystery! The amazing story and the complete lack of any good detailed record inspires many questions and suggests some answers. Primary among which is:

Q1. What in the world was Captain Locke thinking when he ran at an average speed of 11 knots for 1.5 hours down the reef-infested Lynn channel in a blinding snow storm on 10/23/18?

From the book, "The speed with which she hit was never verified, but she had traveled 40 nautical miles in just over three hours. *Sophia* must have averaged at least 11 knots to cover the distance from Point Sherman to the reef in this length of time." This sounded fuzzy but I checked. From Skagway to Vanderbilt Reef is 53.2 miles and the elapsed taken was 4.83 hours, which gives an average speed of 11.0 knots. *Sophie*, of course, had no radar, Loran, GPS, or even a fathometer. In 1918 they navigated in fog or darkness by blowing their horn and timing its echo, about



Book Reviews

The Final Voyage of the *Princess Sophia*

By Betty O'Keefe
and Ian MacDonald
Heritage Press, 1998, \$16.95

Reviewed by Jeff Douthwaite, Skipper of *Flamingo*

10 seconds signaled an object a mile off, and by getting a bearing to whatever lighthouses or mountains, etc., were available.

In this story the nearest light was on Sentinel Island, 3.5 miles south of the reef. In the snowstorm there was effectively none, only an unlit red buoy near the reef. No one knows for sure if the *Sophia* was able to get a fix from Sentinel Island light and its echo (it takes at least two data points to get a fix), but the odds are they got none. I suspect the echoing technique was muted and did not work well in a snowstorm. Taking soundings was out at 11 knots, but even if they had slowed, sounding wouldn't have helped since the average depth in the area right close to the reef is 140 fathoms.

But it certainly did not explain or answer Q1. In fact, the more I think on it, the bigger mystery it becomes. I suggest several possible scenarios:

1. Several captains from other ships were on board for the trip south. One might think, therefore, they were several times as safe, but remembering the human element, they likely were not. They, of course, all invited themselves into the wheelhouse. Foolishly Captain Locke allowed them in. "Professional courtesy you know." Soon they were having a party/celebration of their escape from Skagway, Alaska, going south for the winter. The bottles were brought out, Locke played his role as good old boy host, "Yes we'll get there on time, always do," he said. (He was known as a stickler for being on time.) He never should have let 'em in the wheelhouse.

2. He did run at slow ahead in the snowstorm for awhile but he was ragged on by a Captain Smith who suggested in loud tones that this was "a rather cowardly speed, 'so full ahead. This demonstrated to one and all that Locke was no coward.

3. Captain Jones brought his beautiful

young "secretary" with him and introduced her to Locke. Locke, 66 years old, was impressed, "Sure, full ahead," he ordered. This impressed the lady and gave the rest an envious chuckle.

4. Captain Thwaite brought out his hip flask of rye and Locke took a good drink. This warmed him. "Sure, hold her on full ahead."

5. Locke was feeling tired with a bit of the flu which was rampant at the time, and he was anxious to get back home in Victoria to rest. So "Full ahead."

All of the above are plausible but not in keeping with Locke's reputation as a careful experienced man.

6. A more prosaic possibility is compass error. Assuming they got a fix on Point Sherman, the run to Sentinel Island was 20 miles, to V Reef was 16.5 miles. If their compass were off by 5.5° West error it would have put them on the reef. But this too seems doubtful, for they had already traveled 36.7 miles to get to Point Sherman, on five different compass courses, and would have noticed such a huge compass error; i.e., would have run afoul of the shore or other rocks closer to Skagway! The first 10.5 miles after leaving Skagway they had to traverse Taiya Inlet, which is only one mile wide. And Indian Rock lies in the middle at the south end.

7. Possibly there was an anomalous westward flowing current created by the windstorm and the recent heavy rains near Lynn Channel at that time. Maybe Locke simply forgot about the effect of the runoff from the rainfall. At 11 knots, a west flowing current of 1.06 knots would be required to put them on the reef. Not likely either.

8. Most likely I think, it was an error born of over-confidence and social pressure.

Holding her on course within 5.5° in a following wind and sea, flying blind in a snowstorm for some 20 miles from Point Sherman to Sentinel Island Light was expecting too much. A prudent captain would not have tried it. He would have swallowed his pride, turned around, headed back to Point Sherman and then back to Skagway. But there was a huge amount of social pressure on board to keep going south, away from the snow and storm, and to turn back was to lose face, than which many would rather die. Three hundred and fifty did. The mystery remains.

Q2. Why did Captain Locke not unload his passengers onto the many small boats which arrived at the reef the following morning? This one is easier to answer. There was a considerable risk associated with the discharge of passengers, slips and falls from rope ladders, clambering into the smaller bouncing boats, many were women and children, and some elderly. Also, and most important, the evacuation meant a loss of face. Maintaining "face" was vital to Victorians. And the rescue ship, the *Princess Alice*, was on the way. And of course Captain Locke did not anticipate his ship's slipping off Vanderbilt Reef and sinking into deeper water in the storm the following evening. So why bother to remove his passengers?

Q3. Did Captain Locke make the effort to survey his ship and the locale after she was on the reef? Seems not to have. Did he not know of the deeper water all around? Did he not expect her to slide off into deeper water? So much is unknown here, 'tis difficult to judge. Apparently he had no fear of sliding off the reef, for no one reported any such reconnoitering actions taken.

The Final Voyage of the Princess Sophia is a disappointing book in that the authors are apparently not seamen. They are vague where careful detail is required. They provide no scale on their maps! So how is one supposed to judge the skill or error of Captain Locke; i.e., how far from the shipping lane is the reef? How wide is the channel? How far distant was the last fix, so one knows how much dead reckoning was done?

One has to study the text to find out such vital information (or better, check out the appropriate charts from the library). Turns out the channel was about seven miles wide and the reef is almost in the middle. The last point where they might have obtained a fix was Point Sherman, about 16.5 miles behind them. The next lighthouse near Vanderbilt Reef where they might have obtained a fix was at Sentinel Island, 3.5 miles ahead.

The authors do include some excellent testimony from the subsequent hearing; namely, that a prudent captain would not venture south past Sentinel Island unless he had first obtained a fix from it. "If you miss it you have nothing. You must stop and turn around there because you cannot go on. You must get a reading on Sentinel Island Light in order to pass down through this water," said one Captain Leadbetter. This indicates he had little or no trust in the foghorn echoing technique. Whether or not a good fix was obtained from the preceding Point Sherman is unknown. One is almost suspicious that the CP Company sup-

pressed this vital evidence too. (The ship's log was never found. The less known, the easier it is to dismiss the whole thing as an Act of God, the less reparations, and the better for getting on with business.) "Sorry about losing your wife, old boy, but are you quite sure she was on board? Well, chin up. Carry on. Next."

It was truly a horrible tragedy, but in my opinion the authors O'Keefe and MacDonald over-emphasize the dangers of being on a ship in Alaskan waters and the associated fears. "The inhabitants accepted the dangers of sea travel because there was no other choice." Some balancing comments about the beauty of the scenery are included but their bias is apparent. "...it was the fear of death at sea that kept...Lulu Mae in the Yukon for nearly 20 years after the Gold Rush." While it certainly was more hazardous in 1918 than it is today, it was not necessarily very dangerous if ordinary precautions were taken.

At another place they write of the *Clara Nevada*, a "floating coffin," which was all of 25 years old! Such obvious scary slanting is designed to sell a book rather than to inform the reader. I also have the impression the book was done in a hurry, which seems all too typical of modern books done on computer. It's as if the super speed of the computer drives the humans such that they have no time to think, to speculate, or to polish their sentences. *Sophia's* book does have an extensive bibliography of names of victims and ships involved in the passage to and from Alaska. It

also has many spectacular pictures of shipwrecks.

On the positive side, they do make an effort to provide us with commentary and many quotes from the local press from that time, to tell both sides of the debate about Captain Locke with little editorializing, and to comment on the political issues of the hearings of the tragedy. The British Victorian culture of the times continued to suppress the whole tragedy, which made their work more difficult.

They also comment, in passing, on the loss of beauty and quality as the Princess ships gave way to the modern faster, but less elegant, craft. More discussion of this loss would be appreciated here. The old Princess steam ships possessed a wonderful first class dignity and majesty felt and respected by all, including those who weren't first class passengers. The old steam ships traveled silently, with little vibration and gave one the feeling of being on a ship of beauty, built with loving care to last and to be admired. Their deep-throated steam whistles were thrilling. The modern diesel-driven cruise things, in contrast, look more like floating casinos built by people who have never seen a real ship, but are good at building hotels and boxes and have no respect for tradition. Some call them "gin palaces." Harrumph. But with all their modern electronics aboard, they are safer and probably never will hit Vanderbilt Reef.

The Lyons Press has made a name for itself with its "Quotable" series. Not always much of a name, though. Quotable/Wine was fouled by repetitions and appalling errors (at least in the bound galleys, beyond which I lacked stomach to go) and Quotable/Walking was worse, credited to the editors of Walking Magazine but compiled mostly by galley slaves known as interns. Thus I was wary of the present volume, but soon rewarded by it. No interns here, just knowledgeable Christopher Caswell, editor, writer, and sailor for several decades.

The key to success in a short, specialized book of quotes (properly called, for you copy editors out there, "quotations") is variety. It's all too easy for an editor to assemble a one-note collection of opinions he agrees with and writers he likes without regard for his readers. Instead it's better to have, among other things, long quotations and short, for contrast. On the power of the sea, Uffa Fox goes on for 70-some words; he makes his point, but no pith or poetry, which come in the next quote:

You can out-think the ocean,
but you can't out-slug the ocean.

That, attributed to a "Sign at U.S. Naval Academy," represents the sole appearance of Anon. that Caswell wisely permits. Devotees of Anon., most prolific of authors, are urged to visit the gifty-goo section of their nearest boat shop, where they will find his weary words molded by the long ton into overpriced brass screw-on plaques.

We also want the pros ("Nothing seems really to matter, that's the charm of it....," Kenneth Grahame) and the cons ("This is far too much like hard work...," Humphrey Barton).

The Quotable Sailor

Edited by Christopher Caswell
The Lyons Press, New York
\$20; 242 pp.

Reviewed by Bill Marsano

We want the familiar (Dr. Johnson, Conrad, Melville, seasick old Masefield, the Bible), but not too much and certainly not from film stars. Forgive me, but musings on eternal serenity, indescribable beauty, etc. are mostly claptrap. If we must have them, let them come from real sailors, not from the likes of Liv Ullmann, Lou Gossett, Jr. and, in his staggiest Rich Corinthian Leather baritone, Ricardo Montalban. Caswell redeems himself, however, with some sources that are obscure (the largely forgotten Hilaire Belloc, for example) or unusual (the Duke of Wellington and mystery writer Dorothy L. Sayers).

Hints and tips are always welcome. Among the Do's is a remarkable and apt suggestion from Ben Franklin to John Paul Jones and much irresponsible praise for drink whilst underway, mostly from Sir Francis Chichester, who seems to have drunk his way round the world. To which Alan Villiers replies, "Only fools and passengers drink at sea."

Some quotes in the "rapturous" style bounce nicely off the down-to-earth. "A great cape has a soul..." which may be as obviously French as Victor Hugo ("...gazing at the sea is dangerous. It is what looking at a woman sometimes is") is from Bernard Moitessier. He is, perhaps, gushing

on that page, but he sobers up later with, "Life is too short to splice wire rope."

I could do without the "philosophy" section, which contains much metaphorical stuff like Martin Luther's, "The human heart is like a ship on a stormy sea..." Please. Give me instead a chapter of prejudices and blunt opinions. Admiral Morrison checks in with "...anchor properly in a harbor [don't] tie up at a 'marina,' the yachtsmen's slum," and L. Francis Herreshoff has a fine sneer at "yachts made of veneering and manned with gigolo yacht crews," they add some backbone. More would be welcome.

Still, this is a nifty compendium, worth buying in pairs for ship and shore. It does its job, which is to get you thinking (even arguing) and pointed toward the bookstore and the library, and has fine surprises. My only real complaint is lodged not against Caswell (even though he has failed, utterly, to quote me), but against Lyons Press for skimping on pages and scanting the sources. Attributions often lack context, which is needed to understand why, say, Ben Lexcen said Americans were "dead scared of three million sheep farmers."

What little background there is appears well aft in Notes on Selected Authors and Works and Authors Cited which, for reasons mysterious and obscure, are both separate and sketchy. Even those who are listed are scantily identified. For example, the Luther quote made me think, "What, the Martin Luther?" So I plunged into the stern sheets in search of details. Here is the whole of what I found, "Luther, Martin, author." You don't say!

Devotees of the catboat will be amused/bemused/enraged by the decorative line drawing of same used for decor.

Water Trails for a New Millennium

Story and photos by Tamsin Venn

After a decade of struggle, water trails throughout the country are coming into their own. Recognition, funding, partnerships all have galvanized energy to what until now have been largely volunteer-run organizations.



"Water Trails 201: Keeping 'em Going" was addressed by various Maine Island Trail Assn. organizers including (from left) Trail Manager Rachel Nixon, Development Officer JoAnn Fairchild, Outreach Manager Tania Neuschafer, Executive Director Karen Stimpson, and co-founder Dave Getchell, Sr.



Regional trails require much attention to detail, but highly doable when you marshall the forces: from left, Reed Waite, Washington Water Trail Assn.'s executive director; Scott Keller, vice-president of Hudson River Water Trail Assn.; Kay Henry, Northern Forest Canoe Trail organizer; and Kent Taylor, co-author of the Northeastern Illinois Regional Water Trails Plan

Boat Fun (from left): Ken Fink, Jean Letourneau, organizer for the Le Sentier Maritime du St. Laurent (St. Lawrence River marine trail), and Rich MacDonald, Gulf of Maine project are top three finishers (respectively) in the race to Maiden Cove.



That message sounded loud and clear at the annual meeting of the North American Water Trails Association, co-sponsored for the first time by the Maine Island Trail Assn. Trail organizers from Washington to Illinois to

Maine and many for the first time from Canada gathered Sept. 7-9 at the Southern Maine Technical College in South Portland, Maine.

"The water trail movement in this country is relatively young and growing rapidly, with several hundred existing or emerging water trails, the Maine Island Trail being the oldest of the recreational water trails," Maine Island Trail Assn. Executive Director Karen Stimpson said.

The title of the conference, "Water Trails for the New Millennium," was apt given the new enthusiasm...and funding...many of the water trails have received in the past year.

The number of water trails has grown dramatically throughout the country and Canada. As attendees learned from speakers, they range in length from 100 miles – the York River Water Trail in tidewater Virginia – to 6,000 miles, the Alexander MacKenzie Voyageur Route, which runs from Quebec City to the Pacific Ocean. (Max Finkelstein recounted his adventures of how from 1997-1999 he retraced that route.)

Some have government funding – the Potomac River Trail financed by the National Parks Service (David Brickley); some are figuring out how to get all states to cooperate – the Northern Forest Canoe Trail, which runs through Maine, New Hampshire, Vermont, New York, and a part of Canada (Executive Director Rob Centre).

Most of the blue trail organizers were there to compare notes and share both the success stories and the headaches of works in progress. More than two dozen seminars covered the history and future of recreational waterways, celebrated the economic benefits of water trails, and explored management conundrums arising from increased recreational use.

Many still point to the Maine Island Trail Assn. as the inspiration and precursor to much of the water trail movement in the country.

"The Maine Island Trail people are the resource for how to do it right, regarding access, stewardship, and overuse of facilities," said Billy Mills, Executive Director of the Mattaponi and Pamunkey Rivers Assn. in Virginia who addressed "Native and Historical Trails."

"They've provided the framework for all other people who are interested in water trails," said Mills.

MITA may soon become involved in extending its outreach. One possibility discussed was the creation of a continual water trail that spans the entire Gulf of Maine, from Cape Cod to Canada.

Meanwhile, development stories very different from MITA's experience abounded. The Hudson River Water Trail recently received a grant for \$1 million from the state of New York. New York's Governor George Pataki even participated in the inaugural paddle this past spring, "The Great Hudson River Paddle," rolling up his suit pants and hopping into a kayak to paddle with the group at the kick-off press conference.

Paddlers in the Chesapeake area have long talked of a Chesapeake Water Trail, but soon became realistic about getting the cooperation of various government landowners. A decade later, Chesapeake's visionaries and organizers have broken the bay out into several trails, the most high profile being the Potomac River Water Trail. The states of Virginia and Maryland received a matching grant

from the National Parks Gateways Network. Voila! A slick brochure and six maps covering 100 miles from Washington D.C. to the Chesapeake Bay, all in a pocket, that will be sold for \$5, said David Brickley, Director of Virginia's Dept. of Conservation and Recreation.

Meanwhile one of the first Chesapeake Trail organizers, Chris Conklin, has mapped more than 400 public access points and created a digital map guide and software for those sites, along with a host of other information. He shared that software and the story of his new mapping company in "Mapping and the Digital Trail Guide."

In the seminar, "Water Trails 2001: Keeping 'em Going," Dave Getchell, Sr., co-founder of the Maine Island Trail in 1988 and first President of North American Water Trails in 1995, cited two examples of how trails start modestly. The Hudson River Trail, which got by on member contributions for 10 years, was transformed this past year by the \$1 million grant. The Cascadia Marine Trail started small but took a different approach by hiring a professional as an executive director to operate the trail for nearly 12 years. This past year, building on past success, the association started another trail, the Lakes-to-Locks Trail, turning inward from the ocean.

"By hanging in there, you can do these things," Getchell said. "When \$500 is a gift from heaven and \$500,000 is impossible... Keep at it even if it looks gloomy at times."

MITA's Executive Director Karen Stimpson indicated MITA had a leveling out period several years ago and the organization moved into getting ready for the long haul. "Your organization gets to move from seat of the pants to look to the future," she said optimistically.

"We were not able to do any kind of planning for a long time. We're now moving into a strategic plan so we can look ahead three years and not operate year to year."

In regional water trails, several organizers and directors talked of their development, including Reed Waite, Washington Water Trail Assn.'s third Executive Director; Kay Henry, a partner in Outdoorsense Ltd., a consulting business specializing in the outdoor industry, and an organizer of the Northern Forest Canoe Trail; Kent Taylor, co-author of the Northeastern Illinois Regional Water Trails Plan (who is currently working on a plan for Weishan County in Yunnan, China); and Scott Keller, Vice President of the Hudson River Water Trail Assn. The keynote address was given by Chris Brown of the National Park Service. Workshop speakers included Charlie Jacobi, Resource Specialist with Acadia National Park; Joel Eastman, renowned Casco Bay historian; Wayne Curtis, expert paddler and first kayaker to traverse entire Maine Island Trail; Susan Farady, New England Ocean Conservancy's Ecosystem Protection Manager; Mike Krepner, co-founder of Native Trails, Inc.; and representatives from water trails across the U.S. and Canada, including Boston Harbor Islands, the Nova Scotia Water Trail, and the Rivers, Trails, and Conservation Assistance Program.

The spirit of the water trail movement was best summed up by Kent Taylor of the Illinois Water Trails plan, "It's like finding a park you never knew you had."

To learn more, visit www.mita.org/annualconference2001, or call 207-761-8225.



Stephanie and Susana Hancock, Freeport, Maine launch their cardboard barge, "MITA Got It Faster," for the Build-a-Boat race.



Second place, "Silver Seal," uses the one-blade technique in the Build-a-Boat race, from left, Andrew and David Wortham of Boston, Mass., and Kaitlyn O'Brien, Rochester, N.H.

Is this legal? Jim Duggan and partner forsake paddles for man-made propeller power.



Chaos reigns in the Volunteer Lund Race.

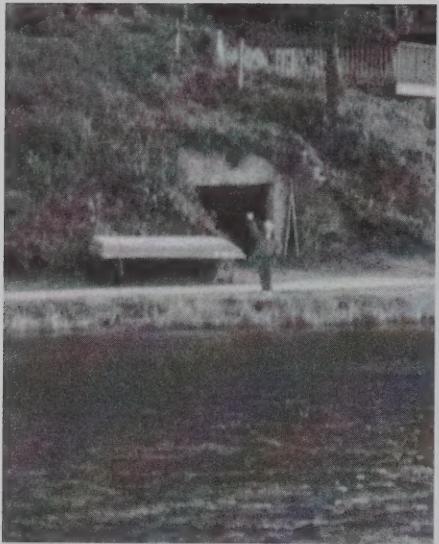


Circumnavigation 2001

A Journal of a Circumnavigation of the Delmarva Peninsula

Part 2

By John Potts

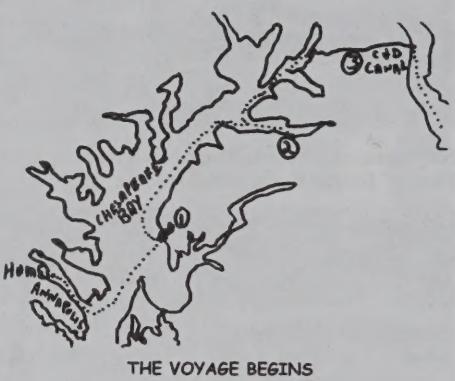


Sandee waving goodbye.



Gear stowed in V-berth forward.

U.S. Naval Academy training vessel.



At last, the day of departure arrived, May 7th, 2001! I left the house at 7:14 AM, pushing the 8' Portabote dinghy on her dolly down the hill. I had loaded the vast majority of stores while the *Sandee Lee* was in dry storage in the marina. Today it is only necessary to load 12 frozen bottles of spring water and a small carry bag. I row out to the sailboat, connect a short line from the mooring buoy to a cleat on the bow, disconnect the two regular mooring line shackles, pull myself to the stern, unscrew the forward thwart and transom support, place them in the cockpit, and board what is to be my home for the next however many days. I do not want to leave the permanent mooring lines floating in the water for so long; they would get fouled with slime and could even be stolen.



Now that the dinghy has been made lighter by removing two-thirds of its wooden supports, I lower the port life line at the bow and pull the dinghy across the bow with the center third of the dinghy resting on deck and the rest hanging over the water. I remove the main thwart and fold the boat and tie it into about a 7" or 8" thickness; I then secure it firmly to the port side of the cabin. I will not be able to utilize the port side deck for going forward with the dinghy secured on deck.

My wife, Sandee, has come down to the small strip of sand to wave to me as I depart. She is standing there watching me, and she motions she is cold. The temperature is 48° Fahrenheit and there is a northeasterly wind about 10 to 12 knots. With this cool temperature for the first day, the voyage will prove to be cooler than I am accustomed to for my usual overnight sailing in the summer months. I start the diesel, uncover the main sail, make a cup of coffee, and slip the mooring buoy at 8:18 AM while waving and blowing kisses to Sandee. She starts walking back up the road to home and I motor out past St. Helena Island into Round Bay where I hoist the main, unfurl the genoa and secure the engine.

The course out of the Severn River is toward the southeast and a northeasterly wind feels good...for a while. As is often the case in the Severn River and the northern half of the Chesapeake Bay, the wind soon turns fickle and from mostly dead ahead. So, at 9:19 AM I start the engine, furl the genoa, and proceed through Annapolis under power with the illusion of sail with the main still hoisted, hoping for more favorable wind. To lower and raise the main I have to physically go to the mast, as none of the lines are rigged to operate from the cockpit, so it often remains hoisted when the wind dies and we are proceeding under power.

I am soon abeam the U.S. Naval Academy on the starboard and the U.S. Naval Station on the port. This is an impressive view just inside the Severn River entrance of the Naval Academy buildings, parade ground, ball fields, and fleet of sailboats, with the church steeples of Annapolis visible in the background. The Naval Station on the north side of the river hosted the fleet of small training ships which the midshipmen frequently hold maneuvering drills on and take longer overnight cruises on the Chesapeake Bay and beyond.

Then adjacent to the Academy on the south side, is Annapolis Harbor with numerous public pay mooring buoys to accommodate the many cruising visitors to Annapolis. A part of Annapolis harbor is the infamous "ego alley," a short, narrow passage leading to the end of Main Street. The "ego alley" is so named because so many boats are maneuvered into the alleyway as if to show off to the many landlubbers walking along the dock area in downtown Annapolis.

Annapolis is self-billed as the "Sailboat Capital of the World," a title disputed by some other choice waterfront cities. There are a lot of sailboats that call Annapolis and the Severn River their homeport. I have made it a practice to sail from Round Bay to Annapolis Harbor at least one day each winter month; I get a great deal of satisfaction in being the only sailboat underway in Annapolis Harbor on a chilly day in December, January, or February. I usually arrive around 11:00 or 12 noon, and most of the time I am the only boat underway. Some-

times, I do see another boat get underway when I turn around to head back up the river. However, on a spring, summer, or fall day, especially weekends, Annapolis Harbor and the Severn River are mad with boats, both sail and power. I learned early on to avoid sailing the area of Annapolis on a summer weekend. It is a very stressful experience, my favorite sailing times are when I am the only one underway. Of course, that is rarely the case off Annapolis. On most warm days, sailing directly through a sailboat race while transiting Annapolis Harbor cannot be avoided.

Having said that, I think the Severn River is one of the most scenic rivers in the Chesapeake Bay area. The river has a lot of high wooded bluffs with large expensive homes and many small scenic creeks and lagoons to explore. And Annapolis, with all her history and the presence of the U.S. Naval tradition, are very interesting. I am very pleased to live in this area, so close to the Chesapeake Bay. Hurricanes and tropical storms are a rarity in the Bay, as well as tornadoes and earthquakes.

By 9:46 AM, *Sandee Lee* and I are abeam the remaining few Naval transmitting towers on the north side of the entrance to the Severn River. All but a few of the tall landmark towers were removed a few years ago. The wind is once again northeasterly 10 to 12 knots as I enter the Chesapeake Bay. I secure the engine and unfurl the genoa. The GPS indicates my speed to be 4.6 knots on a course of southeast. I must soon start working my way toward the northeast and go under the Bay bridges; however, the wind is coming directly from the direction I need to make good. The tidal current is ebbing against me, also.

I try tacking to make good a northeasterly track, however, several times the GPS indicates I am making no progress toward the northeast, so at 11:48 AM I furl the genoa and start the diesel, two miles south of the Bay bridges. At last I am making good my intended track at a little less than 5 knots. I dislike using the engine, however, I have always been a schedule-oriented person and will stoop so low as to use the noisy diesel to stay on schedule. During this tedious tacking trying to go against the wind, I see one of those MacGregor sailboats with a 50hp outboard traveling about 20 knots against the wind. I look somewhat enviously and, momentarily at least, wish I could trade boats. I could do this whole trip in a few days!

I phone Sandee on the cell phone as she had been somewhat apprehensive about unforeseen accidents on the trip. The contact makes us both feel closer.

The Bay bridges, one in each direction, connect the mainland with the Eastern Shore, the object of my circumnavigation. The only other connection over the Bay is the Bay Bridge Tunnel connecting the southern tip of the eastern shore at Cape Charles with Norfolk. The Bay bridges are about 3.6 miles long and see a lot of traffic from autos, boats, and ships, as well as pedestrians and swimmers. Once a year one of the bridges is closed to vehicular traffic to allow pedestrians to walk the bridge.

Also once a year, there is the Bay swim when many swimmers are allowed to swim under the bridges from Sandy Point State Park on the mainland across to the Eastern Shore. There are numerous races from powerboats, world class sailboats, and classic tall ships which pass under the bridge, not to mention

numerous freighters en route to and from the port of Baltimore, which is located just north of the bridges.

By 2:15 PM the wind has shifted from the southeast as I near the turn into Rock Hall and Swan Creek. I secure the engine and proceed under sail almost all the way to the anchorage. I have never sailed this far north of the Severn River before. I am surprised at the several marinas and the numerous uncharted private buoys marking the channel in Swann Creek. It makes the transit up the creek on the Eastern Shore very pleasant and not the least bit stressful worrying about shallow water. At 3:40 PM I lower the anchor in Swan Creek. Not counting the extra distance trying to tack against the wind, the trip was 21 miles in 7 hours and 20 minutes, of which, 3 hours and 20 minutes were under sail. The temperature is in the 60s and sunny. The dodger and bimini make the temperature very comfortable for me. I am the second sailboat anchored for the night in this part of the creek; by 6:00 PM there are two more. I see three homes surrounded by farmland and trees, a pretty and uncluttered scene.

A feel of the two solar shower packs tied to the cabin top reveal cool water as the day was too cool to warm the water; I am glad I do not need to shower this first night. I hope the water will be warmer by anchorage time tomorrow! A small container of clam chowder, Dinty Moore beef stew, and a pudding taste good for supper.

Not a cloud in the sky; the sunset is a beautiful pink as the temperature drops to 60° and will probably hit 50°. At 8:00 PM I install the cabin door to keep out the chill. I use the two blankets I brought but discovered that neither alone will cover me in the bunk as they are too small. I overlap them and supplement them with a large towel on top. Sandee gave me a small note to read each day...a sweet love note from my wife. I phone her to let her know I have arrived at the anchorage safely and she checks off the location on the display on the basement door. Soon after sunset, I drift off to sleep as I plan to try and get underway by sunrise each morning.

I review Day One from Bud's book, *Between Two Bays and The Sea*. He really had some rotten weather with wind from the northeast as well but with rain and cold; he left 11 days later than me in 1987. As I fall asleep, the wind is now periodically howling through the rigging. Not a bad first day.

(To Be Continued)



By Joanne S. Scott

With Drawings by David Q. Scott

In these days of fiberglass, one could perhaps understand how a sailor could succumb to owning a wooden boat, but four, five, over ten? Here is woven a tale through narrative poetry of the foibles and romance of a sail-smitten family and the steady accumulation of one fine character boat after another.

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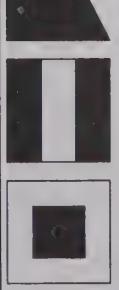
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I suppose the inevitable finally catches any boat builder. No matter how large the project, the time comes when it is finished enough to actually use to go boating. No lie! Fortunately, I have finally evolved to that state with *rAmBuNcTiOuS*, my Martha Jane (revised) designed by Phil Bolger & Friends. Happily I am reporting my first two cruises (for details on the boat refer to http://mkstocks.tripod.com/boats/martha_jane/).

Bogue Sound

The first cruise coincided with the fall meet of the North Carolina Traditional Small Craft Association held at the Brode Estate near Broad Creek off Bogue Sound in North Carolina. I started my trip on Friday evening, September 14, 2001, from the boat ramp on Taylor Creek in Beaufort with *Easter*, my Bolger-designed Nymph in tow. Empirical data indicates that I seem to prefer testing new equipment in the dark, so at about 2100, I left the ramp with my new 2001 8hp 4-stroke Honda power thrust outboard motor pushing me along almost silently.

This was my first trip with this new engine. As my intent was to motor the whole 15 statute miles, I did not raise the masts or fill the water ballast tanks. The original 8hp on my boat was a short shaft, so I had to raise the transom about 5" to accommodate this long shaft engine. That was relatively easy to do, and I like the higher placement of the engine anyway. Along with the increase in shaft length, this engine brought with it a 12-amp alternator, twice the amperage of the original motor. The power thrust engine swings a larger propeller, but at a slower rpm than its counterpart, giving a great deal of torque, ideal for this displacement boat.

After borrowing some dock space in Beaufort proper, I made the obligatory stop at Back Street Pub for libations with some friendly locals, then settled in for my first night aboard my boat. Early Saturday morning, under comfortable sunny skies, I started the motor for the trek down the ICW. The wind was blowing 20 knots NNE, and as I rounded the southern tip of Radio Island into the Morehead City Channel, I was in for a bumpy ride. Since the leeboards were up, it was extremely hard to keep the boat on course with such a wind whipping, but by dropping the leeboards most of the way, my control of the boat improved greatly. Lowering the board sacrifices a bit of speed, but I take comfort in being able to direct the boat, and with a few more rpm of the engine I was back up to speed.

Once I passed under the bridge between Morehead City and Atlantic Beach, it was a very comfortable 6-7 knot cruise (according to the GPS). *rAmBuNcTiOuS* surfs well when it wants to, and with the wind and current over my starboard quarter we surfed often. *Easter* tows without dancing about and does not seem to mind chop.

All of the boats spent the day tied up to the Brode docks, it was just too windy for traditional small craft, especially with its direction. Instead we spent the day socializing, looking at each other's boats, and watching an unending video tape of *Gilligan's Island* episodes, starting with No. 2.

Sunday morning began with a scrumptious homecooked breakfast and more *Gilligan's Island* reruns. With a thermos full of hot tea, I started heading back to Beaufort under clear skies and an ENE wind which had increased to the 25+ knot range. There were

rAmBuNcTiOuS Rides

By Mike Stockstill

lots of gusts and sprays on the return trip, but shelter of the house overhang and side windows allowed me to drink my tea, stay dry, and thoroughly enjoy the trip. This time I rounded the southern tip of Radio Island heading north into a 4-knot current, at least that is what I figured when I looked at how much my speed had dropped after turning. I definitely needed the leeboards down in order to control my progress at that point, and I was happy to have all of that power behind me as I battled both the wind and the tide. Once I got into Taylor's creek it was smooth motoring all the way. I think I burned about four gallons of fuel in total.

Wrightsville Beach

Cruise #2 celebrated my completion of a celestial navigation course. The class was taught by the staff at WaterWays Sailing School in Wrightsville Beach, North Carolina. Thursday, September 27, 2001, I launched *rAmBuNcTiOuS* from the wildlife ramp immediately NE of the US 71 drawbridge on the ICW. This was my first time boating in this area, true to form, I did so in the dark (around 2100 hours). I motored a few minutes down the ICW, then turned SE to follow Motts channel to dock at Seapath Yacht Club for the weekend. This is an easily accessed facility with a courteous staff, clean restrooms, friendly locals, great views, and plenty of eating options within walking distance. I am completely at home camping on my little boat.

The primary goal was to attend class until Sunday afternoon, so I stayed tied up to the dock until Monday morning. Captain Sonia, one of the liveaboards, was kind enough to come with me for a shakedown sail starting about noon. We had clear Carolina blue skies and a comfortable 15 knot wind out of the NE. Under sail the leeboards need to be straight down in order to tack quickly without getting caught in irons. We kept a single reef in the entire time, and that seemed to be just about right. On a balanced lug rig, if you reef the sail and keep the downhaul in the same position, the aft end of the boom wants to sag. Loosening the downhaul a bit before tightening the throat halyard sets the reefed boom slightly higher, but greatly reduces the dip in the aft end of the boom.

Sonia's favorite steering position is up on the quarter with the tiller tilted aft. This gives a great view, but the bass-awards tiller motion (until you get the hang of it) lends itself to testing how the boat reacts to accidental jibes. Fortunately in this design, the cabin keeps crew well away from the boom, and the balanced lug de-powers the jibe instead of sending the rig crashing once it gets most of the way around. In order to make an antenna adjustment we had to lower the mast while we were in the channel, and she was quite surprised how easily it pivots up and down. I was glad to have the extra set of experienced hands to tend to the tiller while I messed with the mast. We got it back up and under way easily enough and made a few runs up and down Banks channel getting the feel of boat and rig. Finally she asked, "Want to head out to sea?" So out to sea we headed. She steered us on the run out Masonboro inlet, commenting how fast this boat can fly downwind. On a run we

discovered that it is easiest to steer if the boat runs wing and wing, the mizzen off to one side and the main off the other.

Once we reached the RW "A" Mo(A) whistle buoy, we headed NE along the coast. Sometimes we tacked and jibed the boat, and sometimes it tacked and jibed us. Eventually we figured out the knack of getting the mizzen balanced so the boat would self-steer, and we controlled the boat instead of the other way round. After reaching up and down the coast, we figured out that moving the tiller slightly to windward and then planting a foot on it to hold it still on the floor seems to do the trick. Make course alterations by pulling or starting the mizzen sheet about 6" at a time, I am glad I installed a cam cleat for the mizzen sheet. We encountered a few gusts and she admitted that a few times she figured she was about to get cold and wet, but we never heeled over quite that far.

After an hour or so we were a ready for a break, so we hove-to, my favorite point of sail. To heave-to with a mizzen, sheet it in all the way and let the bow swing around into the wind. Once in irons, lash the tiller over all the way to one side (ideally to the side to which you intend to go when leaving). The boat will start to move backwards slowly and, as it does, the mizzen is exposed to the wind which pushes the boat right back. Heaving-to on a sloop usually involves a lot of heeling, so I much prefer the negligible degree of heel the mizzen affords when hove-to. To begin moving again, leave the tiller alone and release the mizzen sheet. This allows the boat to move backward, positioning itself for a close reach. Once the proper attitude is attained, move the tiller to slightly windward of center, sheet in the mizzen, and you are underway again.

Captain Sonia set a course SW back to the whistle buoy, and we relaxed and enjoyed the perfect sailing weather. She motored us back in the inlet as I dropped and tied the main and wrapped the mizzen sail around the mizzenmast. She finally allowed me to steer again as we pulled up to the dock at 1530. Leaving the boards straight down, docking is easy with a spring line and a pivoting engine.

She popped her head back into my hatch at 1830 all ready to go to dinner. In keeping with the serendipitous events of the day, we decided to motor to supper in one of her dingsies instead of driving. She pointed out that not many dinner engagements begin with "do you have some spare running lights I can borrow," but I had some spares to lend her, the flashlight style kind, and we attached them to her boat and motored off to the restaurant. So there it is. The idea to build my own boat popped into my head about four years ago. A great design, a stack of plywood, some 2x4s, epoxy, paint, and countless trips to West Marine later, and I have a boat. A happy little motor cruiser or sailboat, with plenty of shade for my hair challenged head, standing headroom for a fellow of my stature, lots of seating space, plenty of potential new memories with my friends.

OK, so I'm ready to build another Phil Bolger & Friends boat now...

PB&F Comments

Phil: A comb for the tiller might be an amenity.

Susanne: In strong wind just the lee side leeboard should be adequate, or any time reaching. The stress is a little less than on the weather side board.

Thompson Antique & Classic Boat Rally

By Andreas Jordahl Rhude

Sixty-one boats and canoes were on hand at the first ever Thompson Antique And Classic Boat Rally on August 10-12 at Marinette, Wisconsin's Nestegg Marine. The event attracted many folks interested in the old boats including a number of former Thompson, Cruisers, and T & T employees who stopped by to see how their handiwork was holding up.

The assembled fleet included duck boats, canoes, rowboats, runabouts, and utility designs. The oldest was an 1898 wooden lap-strake canoe built at Racine Boat Works of Racine, Wisconsin, constructed by Peter Thompson while he worked there. Six years later, in 1904, Peter and his brother Chris formed Thompson Boats near Peshtigo. At the Rally there were boats made by Thompson Brothers Boat Manufacturing Company; Thompson Boat Company of New York, Inc.; Cruisers, Inc. of Oconto, Wisconsin; and T & T Boats, Inc. of Wausau, Wisconsin.

Clayton and Betty Ford had the distinction of bringing a boat the furthest distance. They hauled their 17' Thompson Sea Lancer all the way from New Mexico. Quite a number of boats from the greater Peshtigo, Marinette, and Menominee area were exhibited.

A slide-illustrated presentation on the history of the Thompson Marine endeavors was made by Andreas J. Rhude during the show. Tours of Marinette Marine Corp. and Peshtigo's Sentinel Structures, Inc. were offered on Saturday. The M & M Yacht Club hosted 150 Rally participants at a corn and bratwurst picnic at their facility at the Menominee Marina. A boat parade of seventeen boats took place late Saturday afternoon down the Menominee River from Nestegg to the waters of Green Bay and over to the Menominee Marina.

A "Down and Dirty Boat Building Contest and Race" took place, won by the father and son team of Doug and Benjamin Stukey of Wichita, Kansas.

The Rally was organized by Andreas J. Rhude of Minneapolis, a native of the Marinette area. He had two of his old, wooden Thompson boats on display. The Second Annual Rally will take place August 9-11, 2002, again at Nestegg.

For additional information contact: Mr. Andreas Jordahl Rhude, 4054 Wentworth Ave. South, Minneapolis, MN 55409-1522, (612)823-3990, <ajrhude@aol.com>

Right, top to bottom:

Peter Thompson, grandson of the founder, owns these three Thompsons, from left a 1954 duckboat, a 1948 Ranger canoe, and a 1948 Take Along.

Phil Blank's 1952 12' Super Deluxe awaits restoration.

A 1964 17' Breakers, *My Six Sons*.

A.J. Rhude's 1955 14' Thomboy underway with appreciative passengers.





The author, pulling up his pants.

The thought had been sitting in the back of my mind for a year. We had brought *Sanderling*, the Sandpiper 32 that had been described in a 1995 issue of *MAIB* ("A Really Perfect Boat"), back to the Chesapeake and there were a few things I wanted to do to make it, well, more perfect. One of them was a more traditional skylight. When I found a write-up of Duffy Dodge's method of building a skylight in an article by Paul Lazarus in a 1996 *WoodenBoat* magazine, I quickly copied the article. And shelved it.

It seemed like so much work. How would I know what size to make each part? The article included 1/2 scale section drawings of the joints by Sam Manning, but I couldn't make sense of the drawings. I told myself that my skylight would inevitably be at least a little different. So the copies came off the shelf.

This year we had an early spring. We'd just about finished scraping the old varnish off the deck jewelry and replacing it with \$25 bills (as minted by the Cetol folks), and about the only thing remaining was the old skylight. I had always planned to replace it, so I'd been deferring recoating something that was going off. I'd already replaced the luan cabin liner with birch and that had gone well, leaving the skylight looking even more dingy. Besides, we really needed to make some changes. The old skylight had been sized to clear the builder's head when he stood up, but I was about 4" taller, a crucial difference if I stood up quickly! The existing unit hooked over four 1/4-20 bolts and was solidly fixed when secured, but when freed for access through the hatch it sat loose on the cabin top.

I bit the bullet, and started taking measurements. *Sanderling* has a long cabin but little headroom. I wanted a skylight that would clear my head. I wanted one of those traditional butterfly skylights, but the butterfly sashes would restrict passage through the hatch, so the entire assembly also had to swing fully clear of the hatch opening without coming loose on deck. My hope was to put two sets of hinges on the deck, in front and behind the skylight, so that the unit could be hinged up from the front for maximum ventilation or from the rear for ventilation in spray.

Once home, I sat down with a big sheet of paper and laid out the cabin top thickness and camber, as well as the critical inside dimensions, full scale. I then started adding the needed wood thickness and joint details. The

me that it could all fit together. I went ahead and ordered the hardware and wood. The wood was beautiful, 7' of warm red mahogany, 1-1/2" thick, and planed to a mirror finish. I laid out the cuts for the wood, measuring, re-checking, and re-measuring (can you say "kerf thickness").

Finally it was time to dice it up. I set up the table saw, re-checked blade depth, arranged a support for the end of the plank (7' of 2x10 is heavy) and lined up the cut. Since I was cutting the "gable ends," the cuts would have to be freehand; I felt like a diamond cutter with an uncracked emerald. The new thin kerf blade kissed the wood and slid through without even slowing down. A second cut, and on until the beautiful plank was reduced to a stack of parts and sawdust. Things were finally on their way.

The dovetail joints were the next step. I laid out the pins (the foam board practice helped me keep oriented as to which part was going to slide into which) and cut them out, trimming them to final size with a chisel. The original pattern specified a combination joint; a dovetail growing out of a mortise. The matching grooves were traced from the pins, roughed out with drill and backsaw, and trimmed to fit with the chisel. I realized that I could be a little more enthusiastic with the chisel on the sides that didn't show. I also realized why that mortised tongue was there, it allowed me to be a little more relaxed on the joinery and still leave a smooth interior joint. When completed, the case stayed together without glue. The second hurdle had been passed.

On to the sashes. Easy, nothing but square cuts. I laid them out, sliced up the plank, and realized that I'd cut the vertical stiles about 2" too short. Fortunately, the lumber supplier had insisted on selling me 3' too much wood, just enough to make a second set of stiles. The pieces were going to be joined with mortise and tenon joints; again easy, all right angles. But my cuts would not line up; my trial pieces were slanted, either the trial mortises were off center or crooked. I tried doing one actual piece, but the two mortises weren't in plane with each other. I gave up for the day.

I needed some method of cutting reliable mortises, a jig. After some sketching, I came up with a simple pair of plywood guides for my router. It assembled easily, and produced...oversize mortises. But since it was adjustable, I could tweak it until it was right. Once the jig was ready, all eight mortises appeared in short order.

A major source of conversation about skylights is leaks. Duffy's pattern stopped potential leaks through the piano hinge with a brass gutter set into the spine under the ridge. I cut a length of 1" brass tube lengthwise and carved matching pockets in each gable end, as well as a mortise in the ridge itself.

Now the components could be dry assembled. It looked lovely, though the gable ends were awfully heavy looking. I thought of adding an oval port in one end. I used a drawing program to generate an oval with tick marks on its axes on my laser printer, laid the sheet printed side down on the wood, and ironed the paper. The thermal ink transferred the pattern to the wood. I repositioned the oval to the backside and repeated the performance. I roughed out the opening, and trimmed it to the line with the router. The inside opening was cut 1/4" beyond the original oval to provide a 1/4" rabbet to support the glazing.

Having Butterflies

By Mark Fisher

skylight was soon lying there on the paper. But I wanted to be sure it was right before chopping up \$80 of mahogany. I traced the full size pieces on 1/2" foam board, and taped the pieces together (I even cut dovetails in the foam for practice). It seemed awfully big.

We returned to *Sanderling* and set the hatch mockup in place. It was big. It looked like a barn ventilator. Sarah suggested we see if reducing its height would help, something that was easy with foam board and masking tape construction. It did help, just 1-1/2" less height made a big difference.

I worked up a materials list. The obvious thing was the wood, but it soon became apparent that that was not going to be the majority of the expense. I would also need Lexan glazing, brass strips to retain the Lexan, piano hinges, hatch hinges, latches, and sash supports. And epoxy. And Sikaflex. And screws. And a 1" brass tube for the hinge gutter. And a hatch dog (no, two dogs, as I wanted to be able to hinge the hatch from the front or back). Some things, like the screws, I couldn't order before I had seen the hardware.

Calls for the sash supports were revealing. Lunenberg Foundry offered bronze skylight struts at \$57 each. A number of calls later, I found a house hardware supplier that would provide solid brass casement struts at \$41 each. I decided to make my own, which required even more planning. I didn't want the strut to project into the cabin at any degree of hatch opening, so I returned to the full-scale drawing. I bent a coat hanger to an easy arc and imagined swinging the sash open. The fifth combination of arc and pivot points fit within the allowed space. I would saw the arc out of 1/4" brass strip and braze up pivots from the same material. I could have used stainless Bimini hardware for the pivots, but I would have been spending as much as the complete strut cost for the pivots and they still wouldn't have matched the struts.

I hadn't touched a bit of wood yet, but I was getting anxious. The complications seemed to mount endlessly, but the full-scale drawing was a calming influence, reassuring

Time to "whisk out the epoxy." I did a final dry assembly, and then did it one last time with an epoxy penetration coat in each joint before a top layer of thickened epoxy filled all voids in the joints. The result was admirably rigid. I cleaned up the box and moved on to the next detail, the final shaping. *Sandering* is a fiberglass boat. This means that there are no absolute requirements for its shape, and when I tried the actual hatch over the coaming lip, I discovered that there were several subtle radii in the molding that wouldn't let the hatch close snugly. I went back to a process of slow re-shaping, getting the box to lie as close as possible to the deck.

Coatings were next. Varnish would have given an unparalleled glow to the wood, but I know from hard experience that I don't maintain varnish well. The compromise was Cetol. I coated the entire assembly with honey-colored glaze. I missed the clarity of the mahogany, but this was going to be outdoors, very outdoors, with salt spray, a dinghy dragging across, and anything else decks are likely to have to endure as likelihoods.

Once coated, I bedded the Lexan glazing in Life-Caulk and clamped the edges under 5/8" brass "half round" (actually a low "D" section) to spread the load. It looked incredibly gaudy, with bands of gold running this way and that. The sashes were hinged with brass piano hinge, adding yet another strip of gold to the picture.

The skylight still needed hardware. I needed latches and braces for the sashes and hinges and tie-down dogs for the hatch as a whole. The hatch hinges were stock. The hatch dogs weren't, as they had to swing down to the side so that the bolt wouldn't interfere with the closing of the hatch, I needed to make a sideways opening catch. A little work with hacksaw, file, and torch generated the needed bits. The sashes needed latches. A little thought showed that regular cabinet latches wouldn't stop the swing correctly. Fortunately, re-assembling stock latches with the striker backwards was not too difficult.

Finally, and most importantly, the sash braces needed to be made up. They were laid out on the 1/4" brass stock. Holes at each change of direction were drilled, and I "con-

nected the dots" using lots of electricity and a crumbling saber saw. The pieces were brought closer to shape with copious filing, followed by graduated sanding and polishing. The end result was a brace of artifacts that looked like it had been pried from the Bounty. But they didn't work. The tolerances had been far closer than I had realized and the arms, as fabricated, stuck up where the sash would be.

I gently articulated the braces, simulating sashes opening and closing, and finally decided that by moving one slot about 1/4" I could use them after all. I sawed and filed up a plug for the set and brazed it in place. After polishing, the join was hardly visible. (Two years later, the silver solder has turned darker than the surrounding brass, but I no longer mind.) Finally, I was able to install the assembled hardware.

We took the glory out to the boat. It looked gorgeous, gleaming, rich, elegant, and wonderful. I fit the hinges to the deck and realized that only one set of hinges would fit. Well, on the Chesapeake we mainly need ventilation, so I set the hatch up to hinge from the rear. That also let me see that cute little oval port from the helmsman's station. I also didn't anticipate the tight arc the hatch would swing through, so the hatch dog bolt won't clear the inside of the planking, but it'll have to do.

In use, it is just as wonderful as we expected. The gaudy golden strips quickly darkened to a salty patina, but the Cetol is as bright as when it was first applied. In the last two years we have ended up carrying *Feather*, our lightweight dinghy, over the skylight on a regular basis, and the sashes may be opened up under the boat, creating ventilation with complete protection from the rain.

At anchor, the dinghy comes off (although I must close the sashes before man-handling the dinghy above it) and we glory in our traditional skylight. When bigger gear needs to come or go from the main cabin, the skylight swings all the way back, leaving the full hatch opening unobstructed for dropping folding bicycles, or what-have-you, through. And every time I'm pulling my pants on while standing in its protective space, I say a word of thanks to Duffy Dodge for his pattern.

Happy author, peeking out of new boat jeweiyery.



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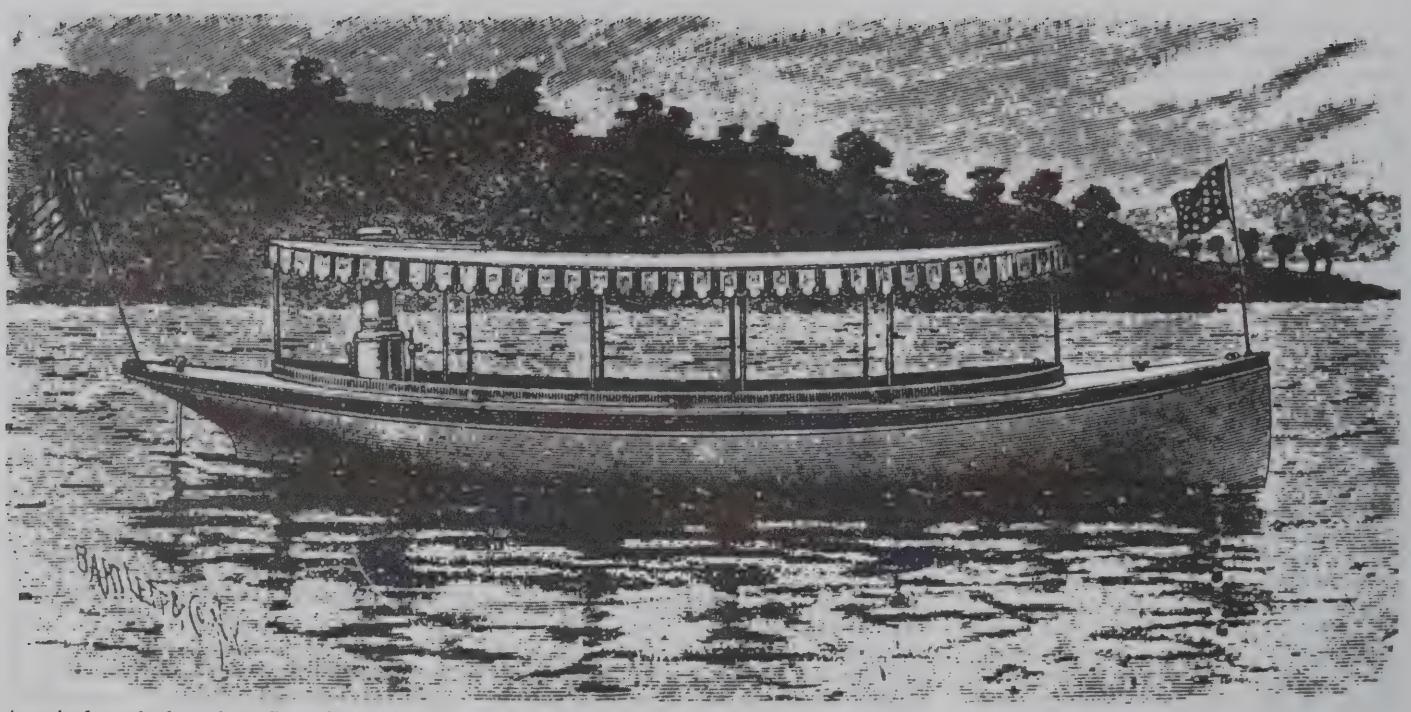
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A typical naptha launch outfitted for a cruise.

"Here this guy was building a fire in this little boiler and I knew it was going to be filled with naptha or gasoline, not water. I'll just wait to see if he goes up in smoke." That was the thought going through this onlooker's head as he stood near the dock on a lake in upstate New York. The year was about 1903.

The "boiler" or "retort" is part of a naptha launch and the owner is starting a fire in it preparing for a picnic cruise. The giggling girls are coming now with hampers of broiled squab, wine and other treats. Looks like a nice day for a cruise, sparkling sun dappled water and a light breeze.

"John, are you ready for us?"

"Oh, come aboard, can you manage getting in? I'm so busy right now but I can help you in a few minutes."

With a little toot on the whistle, John spun the handwheel on the engine and it began to slowly run with the usual clanking of a loosely fitted three cylinder reciprocating engine. But it's still tied to the dock.

It's in reverse now so that a stream of prop driven cooling water will surge past the condenser coils on both sides of the keel. Through these coils the vapor from the engine exhaust will be condensed back into liquid naptha and pumped back into the fuel storage tank.

Why use naptha? It boils quickly at a low temperature and easily stays in gas form to be a dry working medium.

Now it's time to store the lunches and extra clothes and get ready to shove off. The fore and aft lines are thrown off, the remaining breast line is dropped and the handwheel is spun into the forward direction. The fuel valve is opened more and the blue flame under the boiler flares higher. Off they go with an encouraging thrumming sound from the engine.

At 5-7mph the picnic site comes up soon. In this hour of running about a gallon of fuel is used. As the launch comes up to the dock the fuel will be shut off ahead of time, the handwheel spun in the reverse direction, and with usually enough pressure left, a soft land-

A Picnic On Lake Champlain

By Herb Schneider

ing is made.

So there you are, all tied up with the machinery secured, all is quiet, pressure is down to nothing, and you can just walk away from it for an hour or for days.

Operations sound complicated but not as difficult as running a coal fired steamer. Some adventurous wives found that it wasn't so hard to learn how to start and run a naptha launch.

This glimpse of the naptha launch in action probaby raises lots of questions among those who like to mess around in boats.

First of all, this small naptha launch didn't require a licensed steam engineer to run it. They still do not today. Therefore, when the naptha launch was invented, it became very popular. Its operation was open to whoever had the money to buy one. It cost about twice as much as a steamer, but the buyers were there; the well to do summer resident on Lake Champlain, J.P. Morgan for his yacht *Corsair*, our US Navy, and about 4,000 others found these launches attractive. They were used world wide. Naptha was readily available. I recall going to the hardware store for a quart of naptha which my mother used for "dry cleaning", outside of course, in an enameled pan. Then the garment was hung in the sun. Naptha was a distillate of coal tar.

One great attribute was their ability to get underway in just minutes, compared to the lengthy steam startup (I know, I know...Stanley Steamers were underway in under a half hour).

They claim that a yacht's launch could be starting to build up pressure by the time it was lowered to the rail for passengers, then when it hit the water it would churn away to pick up the mail!

It was a clean running power plant, no

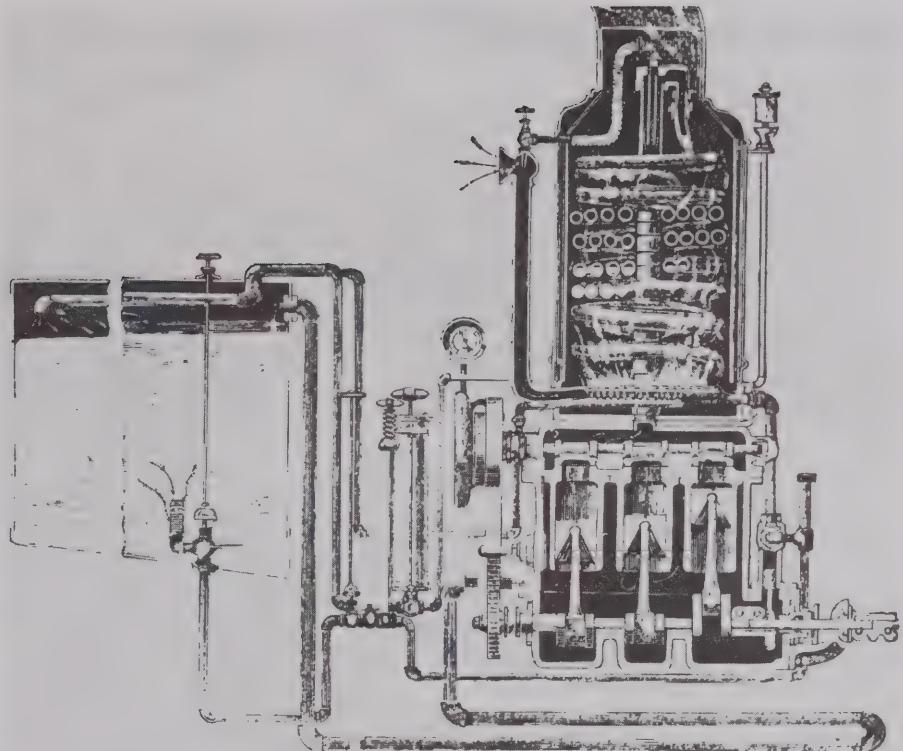
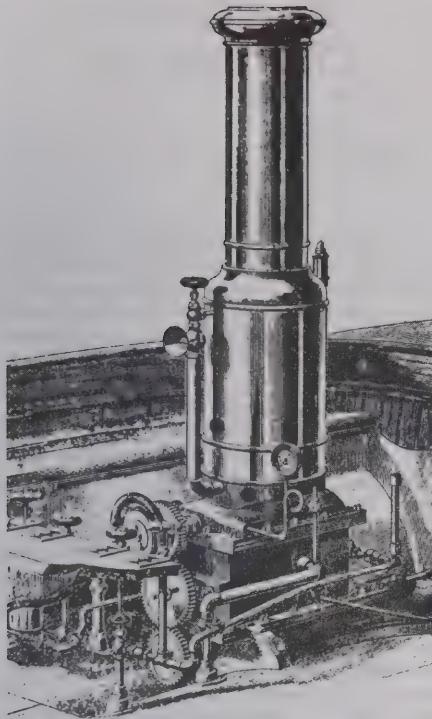
smoke or sparks, and almost self lubricating. Operators gave it a couple of jiggers of sperm oil in the valve box every day or so. The heavy ends of the naptha would plate out on moving parts as in an old outboard motor. Grease fittings on shaft ends got turned as needed. At season's end, on the last run in to the boathouse where it would be hoisted for the winter, a dose of sperm oil and grease was applied. There it was, set for the winter. If you couldn't find naptha, white gas would do. The boat weighed half that of a steamer, boats up to 50' in length were commercially used.

Here is the starting routine as described in *Scientific American*, March 16, 1895, the book *The Naptha Launch of Lake Champlain*, and in a 1971 article in *National Fisherman*:

"In the cross section drawing you'll see the fuel tank in the bow. Vapor is drawn off the fuel surface with a pump and mixed with air to make a burnable mixture. This reduction in pressure causes more fuel to evaporate which continues a supply of vapor. This gas is fed to the burner plate, it looks like that in a gas stove. The burner is lit with a kerosene wand or an alcohol lamp through a port in the boiler shell. The insulated boiler shell only functions as a stack to vent the heat and protect the coils from breezes. And it's, pretty too.

There is some residual naptha in the boiler retort, and with the heat from the pilot burning of vapor, which is being hand pumped from the tank, boiler pressure will begin to rise. Some cold naptha is pumped to the coils and at about 10 lbs. on the pressure guage will be sufficient for the engine to start to turn. If it's not turning in reverse, the handwheel is grabbed and spun backwards to reverse direction of rotation. The exhaust will go into the closed crankcase, then to the keel condenser and return to the fuel tank as cool, liquid naptha.

As soon as the engine starts to turn, the injector pump on the crankshaft begins to deliver cold naptha to the boiler tubes. Pressure builds up quickly and some vapor from the



External view of a naphtha marine engine, and a cross section view of the interior.

boiler is led off to the carburetor. This operates like a Bunsen burner, in the picture it is seen as a horn shaped device where a stream of gas picks up air and is delivered to the burner where it burns with a blue flame.

Now hand pumping of vapor can cease and the engine is running on its own, but slowly. Is everyone ready? Cast off the breastline, grab the handwheel and spin it in the forward direction and you're underway. Open the fuel valve and as much as 65psi will appear on the gauge to push you along at 6-7mph at 400-500rpm."

Polishing the brasswork, a tedious job, is enough to do. Repairs are left to the travelling mechanic when he's in the area. Every few years the babbitt shell bearings are replaced, seals are repacked and boiler coils are brushed off. The boiler was called a "retort"

in company manuals to distinguish it from a steam boiler; the naphtha launch that blew up was just a steam competitor's snide joke. Very few got into trouble. Fuel lines were buried inside the gunwales for safety. If a flare up occurred due to a glitch in the starting routine, it would quickly burn out without harming the copper lined engine compartment.

The valve timing of a steam engine has to be shifted when going from forward to reverse. There are two cams on the crankshaft (eccentrics), one for forward, the other for reverse. A sliding link will cause one or the other to control the valves, or a loose eccentric can be employed, a device like a hub with a wide keyway so that it moves on the keyed shaft enough to shift to forward or reverse. A similar arrangement worked for the naphtha engine.

This boat was designed by F.W. Ofgloz about 100 years ago, a wonderful invention!

But what's that chugging heard in the background? It's the "infernal" combustion engine pushing its way onto the scene, sounding the death knell of the naphtha launch, and the advent of the stinkpot.

During World War I most naphtha launches were set aside, fuel became scarce and the foundries were hungry for copper and brass. Most of the empty hulls were later fitted out with gasoline engines of 3-4hp. People still referred to them as naphtha launches because of their fantail hull shape, fine lines, easily driven, although wet in choppy weather.

There are only a few left now, you can see one at the Mystic Seaport Museum, all polished up. A bit funky but interesting. But, wouldn't you like to see and hear it running on the water!

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Fred Shell's CrabClaw Cat

By Bob Hicks



Fred Shell states in his flyer on his newest creation that "the crab claw is probably the most efficient of all sail rigs in terms of power per square foot." I can neither confirm or dispute this assessment after Jane and I enjoyed a pleasant sail with Fred and Deb on St. Albans Bay on Lake Champlain in early October. But I can say his small catamaran is a really nice day sailer with lots of sprawling space for the four of us. We had the bay all to ourselves with a breeze building to maybe 10 knots a ways out away from the wind shadow alongshore near the launching ramp. Fred got us out to the wind with one of the two electric outboards fitted. One's enough for almost any needs short of having to hurry back ahead of a squall (as he did last summer once).

Fred has had an ongoing off and on affair with multihulls, way back he built and sailed a 24' trimaran, long gone now. In the fall of 1995 we travelled to the northwest corner of Vermont to see Fred's Clipper Tri, and it became the cover feature in our November 15, 1995 issue. On that day the wind she blew and Fred went out alone to demo sail the tri along the shoreline, no hands.

Now Fred's back with two hulls, and a crab claw rig has replaced his signature leg-o-mutton curved sprit boomed rig used on all his line of monohull boat kits. He announced his initial concept in our November 1, 1998 issue, at the time it was in the modelling stage.

This year the wind she again blew upon our arrival Saturday. After viewing the wild horses racing over the bay, we opted out of a sail ourselves and looked in on the Lake Champlain Maritime Museum's shipyard project in nearby Burlington. We stayed over to Sunday and, after the front passed through Saturday night, were blessed with a mild sailing breeze.

The cat is trailerable (beam 8'6") and easily launched and rigged. The unique bipod masts from which are hung the crab claw main and mizzen stay right in place over the road and the yards from which the sails are suspended lay on the cabin house top ready to raise. It's all very simple. Maybe this rig has an odd appearance compared to today's high aspect marconi rigs, or traditional gaffers, but it does the job without fuss. The main and mizzen can be raised and lowered and trimmed from inside the cabin house should the skipper so desire. The jib is tacked to a little bowsprit and its mast is a fold down extension on top of the main tripod.

The broad bridge deck forward is sprawling/sunning space, or with its canvas cover in place, overnight sleeping accomodations. The cabin house is a summer porch concept with

Left from the top: On the ramp, spars ride on cabin roof, bipod mast stays put, canopy doubles as travel/storage cover. Heading out, all sail up. Coming in, mizzen could use some trim. Dropping the rig at dockside.

easily removed windows (Fred's were plexiglass, but lexan might take more abuse) that can be used to provide protection for any weather conditions likely to be encountered when daysailing or overnight coastal cruising. With the foredeck cover in place this cat has mucho sleeping area.

Catamarans are becoming more attractive to more sailors, those who have reason to prefer sailing flat and not on their ear all the time. Fred's cat is a very stable platform, we encountered only a mild one foot wind chop out on the bay, but the cat sailed across this with hardly a nod. Our moving about on the bridge deck and into and out of the cabin while underway did not affect the trim at all, a really good reason that this cat makes a great family sailor, more social than being cooped up in the cockpit on an 18' monohull.

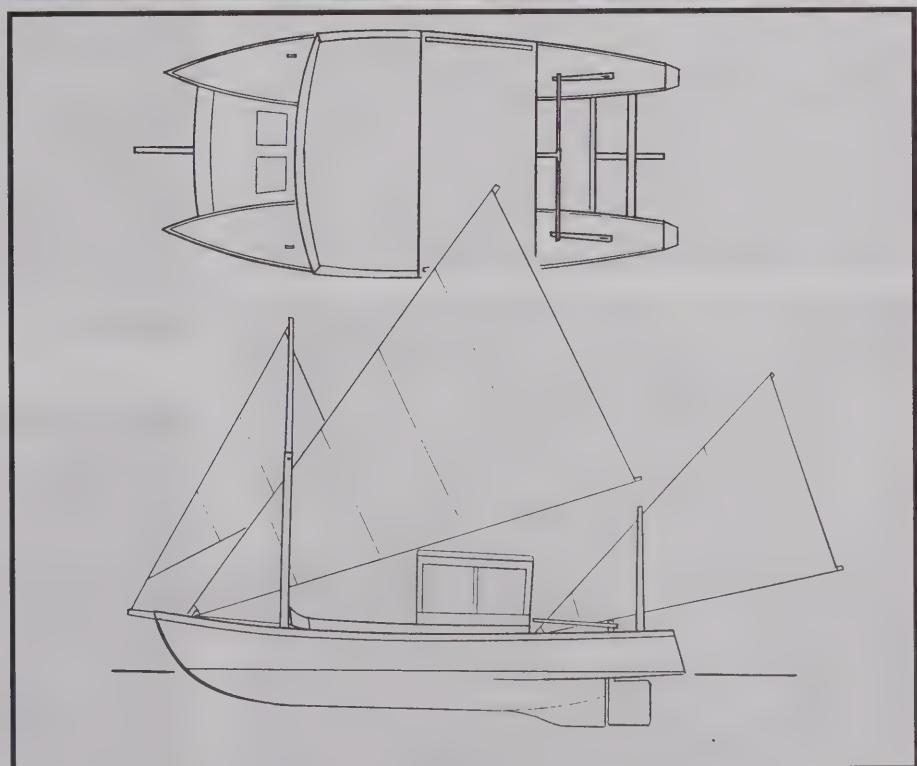
The major obstacle for those thinking of getting into multihulls is the absence of affordable entry level boats, new or used. With so many good used monohulls available cheap, the outlay for a new multihull is just not an option for most. Fred offers a solution, his CrabClaw kit for the home builder costs \$4,750 (complete with sails), a finished boat \$9,750. In the multihull market these are low prices indeed. Despite the CrabClaw Cat's 18' x 8'6" size, Fred dry assembles each kit as he does with all his smaller kit boats, so the buyer knows it will go together without hassles.

At right, fore and aft views from below. Outboards lift vertically out of water when not in use, note the one we used remains at full depth.

Fred says...

After two years of testing and modification the CrabClaw Cat is now available. A great boat in every way, I have had a ball working out this design and using it. This is a boat for (almost) all seasons. The canopy provides shelter from the summer sun or an occasional shower. It is also a favorite diving platform and sunbathing area. Add the easily fitted windows, and sliding doors, and you can enjoy sailing even when the weather turns cold. The enclosed area has room for a galley/chart table, plenty of sitting room and even a head. The boat can be sailed from under the canopy or from the open cockpit in front. The cockpit cover rolls down for trailering or to create a generous double bunk area for overnighting.

The crab claw is probably the most efficient of all sail rigs, in terms of power per square foot. In addition it has a very low center of effort. This allows the CrabClaw Cat to have good speed potential and the great stability necessary for a small cruiser. This rig is very easy to use; the main and mizzen can be raised or lowered from under the canopy in less than a minute. A small motor, gas or electric, can be mounted behind the canopy area, and accessed through the sliding rear windows. You and your crew are well insulated from any noise or smell. If you choose an electric you will be delighted with the quiet, smooth ride. The fine hulls and light weight of the CrabClaw Cat make it ideal for electric power. I have even found myself intentionally going "sailing" on days with no wind!



Swifty

Fred's most successful design has been his Swifty series, launched in 1985 and now numbering no less than five versions, 11', 12', 13', 14' 15'. They did not appear in that order, Swifty 12 was the first, and still most popular, Swifty 14 followed, with the same hull shape as the 12 scaled up. Swifty 13 fell in between, and a cabin option was offered. Swifty 15 was the ultimate enlargement of the basic Swifty shape, with its cabin offering cruising capabilities. Then it was back to the other end of the scale with Swifty 11, the same beam as Swifty 12 but more compact, its proportions much like those of the Beetle Cat.

Fred dry fits all the components of each kit he ships out, and on our visit he had a Swifty 11 assembled, ready for disassembling, marking and crating for shipment. We photographed the 45 minute operation as Fred wielded his power screwdriver removing the small deck screws that held the components in place. As each part came off, it was marked along each joint for the home builder to match the pieces when doing the final assembly.



The fall season was fast approaching and we had to turn the boat over, remove the mold, seal the interior balsa, remove the temporary foam and laminate the interior skin before winter. This brought us back to our original blunder, the shed. It wasn't large enough to roll the boat over or work on when it was right side up. We tore down the old shed and rebuilt it the full length and height of the house, the hell with the neighbors. I backed up the car, hooked a chain to the mold base, positioned six pieces of pipe under the base, cut off the ground stakes and pulled it out to a position between two large trees. We built a rollover cradle on the boat, rigged up the blocks and tackle, and very carefully turned her over, a very emotional couple of hours. We then pulled the boat back into the new shed, climbed in, and had several beers and glasses of wine.

Getting the mold out of the boat was a very tedious process and took several days. We removed all the screws attaching the end grain balsa to the mold, cut off the keel molds, and rigged a chain fall to lift the mold out, no luck. We had to cut and pry every section. I believe that the curing process had caused the hull shell to shrink a little, meaning we had to cut and pry every section. I don't think we removed a piece of lathing that was over 12" long. The only pieces that we were careful with were the mold stations, as they would be used for bulkhead patterns. The temporary urethane foam was chiseled out and the entire interior was given a good sanding with the disc followed with a screed mix over the balsa.

John Hopkins dropped by to check on our progress the day that Ann and I were preparing to lay 2-oz. matt on the inside and offered his help. With the three of us we covered all the balsa with two layers in about three hours. Later we laminated three layers of 2-oz. matt and one layer of 24-oz. roving inside the keels and inner bottom. Working inside the hull in an enclosed shed made us dizzy, requiring frequent trips outside for fresh air. Several days later I installed an exhaust fan on one end of the shed and an intake on the other.

The hull shell was now complete. Not bad for six months of part time work by two novices with occasional help from friends.

In the early fall we were told to vacate our house as the demolition schedule for that part of the development was under way. We

Hull rollover 1978.



Gary, Ann, and Grendel

Part 3

By Gary Vaughn

tore down the new shed and pushed the boat to the next street on pipe rollers and moved into a larger house that was now vacant and would be available to us long enough to finish the boat. We covered the hull for the winter and stored all the material and tools in the much nicer cellar. It was now time to take a break which included a short vacation in Florida.

We returned from vacation in time to attend the fall semester for my Mechanical Design course in which I was very fortunate to have an instructor who was also an avid sailor. After the mid-term I was allowed to select "Sailboat Rig Design" as my project with the emphasis on "Chinese Lug (Junk) Design." The end result was a combination of Jock McLeod and Thomas Colvin. Calculations for sail area, centers of effort, stability and strength weight ratios opened a new reality, there is more to boat design than beauty.

In the early spring of 1979 I built a new shed situated away from the house so the resin smell wouldn't permeate the walls. I was determined that this shed would stand until the end of the project. It was 12' high, 40' long, and 16' wide with wired receptacles and fluorescent lamps. An adjustable scaffold completely circled the hull and a workbench and shelves were installed. We were very pleased with how sturdy this simple structure of 2x4 frames covered with 6-mil plastic was.

We had been corresponding with the designer John Letcher and sending photo updates of our progress. John was teaching at the University of Florida during the winter of '78/'79 when the subject of the sheer line came up. He was very concerned about the sheer and its effect on the overall appearance of the boat. He volunteered his advice and provided new offsets for this line which I stored away for future reference.

The drawings of the interior were fairly well firmed up by now and were similar to the Parday's "Seraffyn." We hadn't yet made up our minds about the raised curved deck or a

conventional deckhouse, so the bulkhead drawings were left with enough space for either type.

Each of the 3/4" marine ply bulkheads were laid out with the appropriate placement of 3/4"x2" fir straps for such items as counter fronts and tops, berth fronts and tops, and shelves. Large 2" holes were cut adjacent to the edge of each bulkhead where it met the hull surface. These holes would allow resin and roving to connect one side with the other and form a good chemical bond. Unwaxed resin was applied to each bulkhead for two reasons. The first was wood/fiberglass joint failures due to resin starvation. The second was our concern about protecting the plywood from weather conditions. We should have only applied the resin to the joint areas. Later, during the finish phase, the unwaxed resin on the bulkheads caused a lot of grief.

Each bulkhead was installed by applying a mixture of Filite and resin to form a radius along the hull bulkhead joint. Glassing in two doubles of 24-oz. roving and 2-oz. matt on each side of the bulkhead then completed this joint. The roving/matt combination was approximately 8" wide and 4" each on the hull and bulkhead. After the lay-up cured 1/4" holes were drilled through the FRP and plywood to receive stainless steel bolts every 6". If our work on the bulkheads sounds like overkill, it is because of the many horror stories we've heard about bulkhead separation in stock fiberglass boats. The basic interior was now defined.

One of my concerns during the conceptual phase of our boat was whether the keels should have internal or external ballast. Having an external casting done is an expensive operation and I certainly didn't want to attempt it myself. We opted for internal ballast with a protective steel shoe bolted on the bottom of each keel for taking the ground. Six alternating layers of matt and roving were applied inside each keel to stiffen them and seal the shoe bolts. While sticking my head into the keels during the 'glassing' operation I used a breathing mask with a charcoal filter.

What a change, the vapors from the catalyzed resin no longer made me ill. The ballast consisted of multiple pieces of 1" boiler plate cut to the cross sectional shape of the keels and metal punches that John Hopkins had left over from his ballasting project. Each piece of 1" plate was laid in wet resin and the entire mass was covered with six more layers of matt and roving. The final ballast total was 2000 lbs., about 400 lbs. greater than the original design to compensate for the higher super structure and larger sail plan.

With the ballast operation complete, the remaining pieces of plywood were installed: berth fronts and tops, counter tops and fronts, and floors. Where each of these pieces abutted the hull it was glassed in place. Glassing this egg-crate into the hull created a much more rigid structure. After completing the installation of the floors, we decided to cut them out and use the hull inside bottom as the floor. This move provided an increase of 3" headroom, which enabled Ann to stand upright if we opted for a conventional deckhouse. A sandwich of end-grain-balsa and FRP was added to the floor area to provide some insulation.

We now had to make a decision about the super structure, deckhouse or blister. During the winter of '79/'80 we were visiting John

and Joan Hopkins frequently, bringing over a covered dish supper and sampling the wine they were making. I was impressed with the type of construction that John was using for his deckhouse, Airex core. This entailed building a complicated male mold of wood and masonite sheeting that could be removed from inside the boat. Back to the drawing board and modification of the full size patterns. Our final design was a deck curve of 6" in 7' with a 12' long by 12" high house on top that provided for 18" side decks.

The mold framing was bolted and screwed to the bulkheads and sheer planks from the inside and covered with 1/4" masonite. This project was finished late one Sunday night. When we came home from work the next day we found the entire mold lumpy and swollen due to our lovely Cape Cod early spring weather. Each piece of masonite was removed and trimmed to allow an expansion gap. The entire mold was given three coats of urethane varnish and several coats of paste wax, which also filled the expansion gaps.

Spring was here and the temperature inside inside the shed was adequate for fiberglassing, provided the application was finished by 2:00 in the afternoon to allow an additional two hours before the heat of the day was lost. Ann and I decided to start glassing as we wanted to finish the deck and cabin trunk before Stan and Anna came up for the summer. Two long weekends were spent applying two layers of 2-oz. matt separated by one piece of 24-oz. roving to the entire mold.

Again Ann and I cut and fit each piece dry, then applied resin and rolled out the laminate. After grinding down the rough spots we cut and fit the 1/2" Airex that was the core. Each piece of deck Airex was laid in a very wet piece of matt with the edge of the matt bent up the sides to connect with the top laminate and provide an "I" beam. The top laminate consisted of three layers of 2-oz. matt with one layer of 24-oz. roving. We had just finished applying the last of the 'glass when Stan and Anna arrived for the summer.

I was very happy about this as I do my best finish work when Stan is around. He doesn't say anything, just walks around feeling the surface and I know it needs more work. He gets the best from me this way even though it's annoying at times. Stan and I spent one month sanding and fairing the decks and cabin. When we finished, Stan and Anna left for an extended visit to other relatives and a much-needed rest.

Remember our original idea about the sheer line? A straight line from 6" above the base line at the bow to 6" below the base line at the stern. This line looked good on paper but when viewed in three dimensions it appeared hump-back due to the fact that the center of the boat is closer to the eye than the ends. The bow looked like a droop sloop. I argued with myself and talked to Ann about how modern it looked but to no avail, we needed a sweet curve for this line. We retrieved the offsets that John Letcher had sent and built a masonite mold to define them for our new bulwarks. This curve started 6" above the stem, came within 1" of the deck at 75% of the length and then swept up to 6" above the stern post. My God, what a difference in looks! John was right, this is the most important line on the boat.

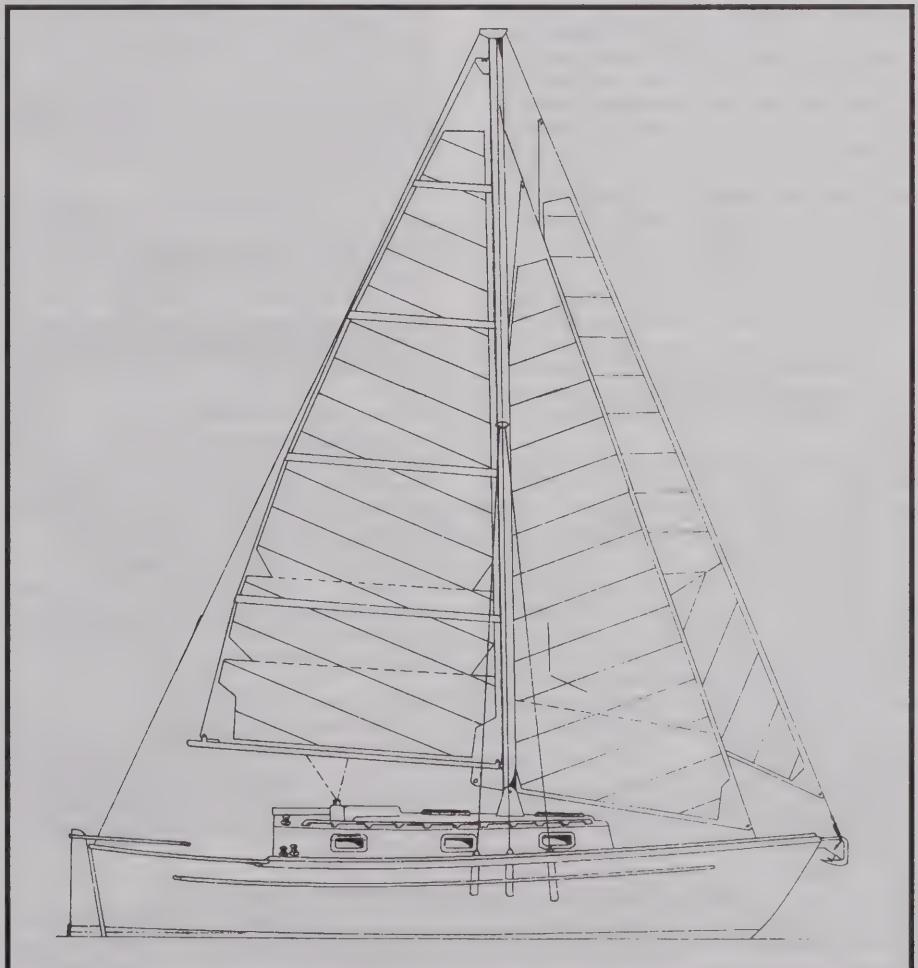
The bulwarks were laminated with FRP

and Airex then faired into the deck. After removing the masonite mold a line was drawn 8" below the top of the bulwarks on the hull from bow to stern. Two layers of 2-oz. matt and one layer or 24-oz. roving were laminated on this area providing a homogeneous external hull deck unit. The external fiberglassing was now complete. Only one area remained before we could throw away our work clothes, the internal hull deck joint.

This was a very messy and dangerous

operation. The gas from the curing resin was very bad and the resin dripped into my face as I worked over head. Ann stayed in the cockpit and kept me talking to insure that I didn't take a long nap. I finally borrowed a Scott air pack full-face mask with a charcoal filter. The deck seam brought our fiberglassing to an end, finally. We collectively breathed a sigh of relief and threw away our work clothes, at this point they barely resembled clothing.

(To Be Continued)



March 17, 2001

I am 68. When I was 18, 51 years ago, I acquired, repaired, paddled, and lost a dug-out pirogue, all in a summer. Back then I was keeping a journal. Reproduced below are the pirogue parts of the journal with my 2001 remarks added in italics. The repairs are what interest me today. I had no idea how to repair it and could have ruined it had it not been nearly indestructible. Perhaps some readers will know how it should have been done.

March, 1950

Work has been going on in the backyard on Daddy's boat for some time, a little more paint and it will be finished. I am especially anxious to get it out of the way because I will move a boat into its place. A certain dugout canoe or pirogue at the Alba Club has been gathering dust on the rafters of the boat wharf for about 20 years. It has one big split in the side and numerous holes, but I finally got around to asking Mr. Rainville (*the then resident manager of Mobile's Alba Hunting and Fishing Club*) if he knew who owned it. He said no and that he was planning to make a bonfire out of it someday soon.

So I asked him for it. He said he'd have to ask the higher-ups. My mother told me later that it had belonged to old Mr. Goodbrad of the florist Goodbrads, who had let her ride in it when she was a young girl. Mommee called some of the Goodbrad children who said they thought the thing had rotted long ago and that I was welcome to it. So now it's mine. I have no big hopes for such a holey thing, but Daddy says Weldwood glue can do anything.

A word about my father. Daddy was half-owner of the Mobile Cylinder Grinding Company on Commerce and Water, down at the river. It had begun as a general machine shop; its namesake machine reground cylinders, steam, diesel, or gas, for tugboats, launches, freighters, even sternwheelers. But by the '30s it was mostly an outboard motor repair shop, said to be the biggest on the Gulf Coast. Daddy was a skilled mechanic and wood-worker. Daddy's boat, called The Boat in the journal, was a 14' molded plywood hull to which he had added transom, keel, seats, a bow deck, chine guards, and everything else. As far as we knew this was the first molded plywood boat to hit Mobile waters, and Daddy was happy to tell people that it was of the same stuff of which Britain's Mosquito bombers were built.

I had been aware of the pirogue for several years. The boat wharf at the Alba Club provided gated sheds for small boats. Then further out the sheet metal roof lifted up and provided open slips for 32' Chris Craft cruisers and their like. Up in the rafters covered with dust and wren's nests sat the pirogue. No one, including the Goodbrads, knew where it came from or how old it was. I was reticent to ask for what I wanted back then. Well, I still am. So it took a year or two for it to dawn on me I could ask for this beautiful thing.

Sunday, March 26, 1950

Today Dr. Johnson brought a big truck in the yard and carried away the boat. *The Boat* is more of an institution than a real wooden vessel. Daddy can't do this, he has to work on *The Boat*. Mr. Freeman and I must help him turn *The Boat* over. Strange people wander in the yard at all hours with the password, "Francis told me to come see *The Boat*."

The Florist's Pirogue

Part I

By Francis Walter



The other day a fat, red-faced person got out of a truck and came in the yard asking directions and he and Daddy talked for some time. When he left he had a Mobile Cylinder Grinding Fishing Calendar under his arm and an invitation to bring his motor down for a check-up or trade-in. He also wanted to buy a hull just like Daddy had but couldn't scrape up the money right now. I never did find out who he was looking for.

To make a long story short we got the boat in and it ran fine. Everyone complimented Daddy and we put my pirogue in the truck and brought it home. The shabbiness of the venerable craft produced a lot of ribbing about its value as a seafaring thing, but I have taken it all with a Spartan attitude and intend to make a fine boat out of it.

Monday, March 27, 1950

Worked on my boat. Henry (*Cole*) came over and we brushed a layer of rotted wood from the inside bottom. It is made of one huge cypress log, is 13-1/2' long and has an extreme beam of a little less than 3'. (*The bottom of the hull was 2 to 2-1/4" thick and tapered to perhaps 3/4" at the gunwales. This presumably contributed to its surprising stability. I gauged the bottom thickness when the bad split developed. See below.*)

Tuesday, March 28, 1950

Selected a fine mahogany board to replace a 5' crack in the side of the pirogue. We cut out the section and approximated the fit of the board. The problem is now to fit the board (properly) into the place cut for it and make it stay there.

Wednesday, March 29, 1950

Got out the boat clamps and Weldwood glue and fixed another large crack that had occurred in the bow from age and warping.

The boat has been fixed, it seems, many times before. Some repairs are good, some bad. The last time this crack was fixed no attempt was made to pull the split together, but instead a lot of putty was put in to fill the crack. Getting all the putty out and gently closing the crack were delicate jobs.

Thursday, March 30, 1950

A holiday from school. Fixed a crack in the other end almost identical to the bow one.

Sunday, May 5, 1950

After some weeks the pirogue is finished. The patch on the side is so well fit you can hardly see it, and the addition of two seats improves it very much. I had planned on putting back three, but I would like to say here that I didn't put in a middle seat so there would be room for somebody to lie down and sleep in it or prop it over them for shelter like a canoe, all that was an afterthought. I was just too lazy to put in another seat.

Painting the thing was a problem. About a year ago Daddy brought home some boat paint from the junkyard where he had yielded to the temptation of getting something cheap. It went under the name "Buff" but such nomenclature hardly describes it. Picture if you can the color of orange peels in liquid state and add to it a lot of milk and that is about what it looked like. That was why it was still here. Daddy didn't want it on his boat and I didn't want it on mine. But it would cost about \$4 to buy paint for it. Daddy said he had some paint pigments around somewhere. We got 'em and agreed to try something because the paint couldn't look much worse no matter what color it turned.

After putting around we found that Prussian Blue in a certain ratio would produce a passable green. We started mixing the brew. In degrees it began to change, first a hideous tan and then a muddy brown. Just as it looked a little green the blue gave out. We added a tube of Chrome Green to, as Daddy said, "lighten the color." No change. We threw in an old can of green porch paint and squeezed the blue tube with pliers. This made it approach the border of green-ness. It resembled Army olive drab more than anything else.

All this time it had been mixing with a bent wire in the drill press. Daddy put it there under protest from me because I remembered the time I was painting the outside of the shop and was stirring paint. Daddy said he would help me by making a paint mixer in the drill press. He did and it attempted to paint the inside of the shop, and would have done it too if Daddy hadn't courageously braved a hail of paint and turned it off. (*He had forgotten it was belted up to run fast.*) It didn't do it this time though.

Enough said, the boat is painted and will be taken down Sunday after services when my Patsy (*my sister*) will be confirmed. Strange to note the brown in the paint upon exposure to the air turned green and looks pretty good.

In this 1950 photograph, one can see the brackets for three seats, the front one well back from the bow. The dark lines on the inside show where I poured Weldwood glue in the cracks. The bow and stern show the splits I repaired. The slightly raised bow effectively kept rough water out. I seem to remember flakes of a red lead looking paint visible around the seat brackets, which would explain why we wanted to paint it.

It is all jackleg but it'll work. We have done these flat, poly "V" belt drive rigs before. Those kinds of belts have the advantage of transmitting a lot more horsepower for their size and weight than anything else. Not only that, but they'll de-clutch with just the slightest little bit of slack. Not only that, but they are so efficient that the friction in the drive is less than the friction of the seal on the ball bearing that the shaft runs in. All that is well and good, but the real advantage is that you can exactly match the ratio to the wheel, this one is running 4 to 3 reduction which will turn the Atkin prescribed wheel at his rpm while letting the little Kubota wind up to its rpm.

The way the clutch and reverse works is that the front shock on the wood motor mounts of the engine (I like all the wood I can get between the engine and the boat) are fairly rigid to hold the belt sheaves in alignment, but the rear shocks are soft rubber and can be compressed enough not only to allow the belt to go slack and give neutral, but to go even further down so that a rubber disc (Snapper riding lawnmower drive disc) on the engine stub shaft hits a fiberglass wood disc on the propeller shaft and turns it backwards. What does the compression of the shocks is just a chain going from the bottom of the starter flange on the engine to the bottom of the boat.

A shaft is made up to one link of this chain and when that shaft is twisted, it turns that link sideways and shortens the chain. The default mode of the drive is forward, you have to stomp a little pedal to get neutral and reverse. Since I don't do much close work in the confines of marinas and such, I normally just leave my boat in gear all the time. I just use a touch of reverse every now and then to keep me from grinding too many oysters. The starter and cutoff buttons will be in the end of the tiller

The Engine Room Situation of the Rescue Minor

By Robb White

and it'll have a twist grip throttle like an outboard motor.

The cooling system is a keel cooler, 1" copper tubing soldered to a 1/4" copper plate mounted flush on the bottom of the boat. The coolant will be circulated by an automotive style centrifugal pump. We have done that, too. I don't trust any rubber impeller pump. I think they are a scam by marine engine manufacturers as a way to sell more marine engines. The exhaust will be wet with a plastic muffler and all and fed by a scoop right behind the propeller and also by water from the keel cooler box.

There is a diaphragm pump in case all else fails. I might eventually rig up an engine mount vibration pump that I bet will work, too, but I believe the passive flow from the keel cooler and the propeller scoop will be all I need. The exhaust cooling water will flow through a coil of monel tubing inside the bottom of the oil pan of the engine. The transmission will require no cooling.

Now the shaft seal: We have done that before, too. It is an industrial carbon ceramic pump shaft seal. They are cheap and very reliable, a perfect example of how marine suppliers gouge you. A 1" one of those costs \$4.75, and exactly the same thing with a rubber bellows like on the end of a car rack-and-pinion steering and a maritime sounding name costs

\$185. The only problem with them is that the carbon causes a little bit of electrolysis on the shaft. On a sailboat that stays in the water all the time, you have to rig a zinc closer to the seal than the one that protects the propeller, but on a trailer rig like this I don't think I will fool with it.

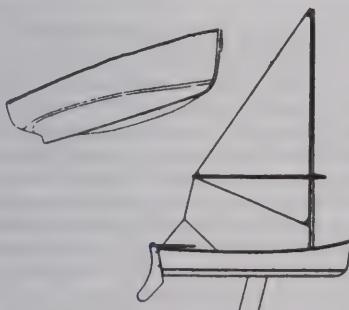
The caveat with those seals is that the shaft has to act like a pump and not wiggle around all over the place. That flange bearing will take care of that. I will keep a regular stuffing box on there set up loose and greasy just for old time sake. The flange bearing is mounted on a section of big, thick flat belt material to quiet down any rumbling from the shaft and bearing noise.

The propeller will be set up with a shear pin and quick disconnect like on a hose coupling. All you have to do is push a recessed button in the hub and pull the prop off. We have done that on sailboats and it works fine. It is nice to be able to just snatch the wheel off without even a face mask when the time comes to sail or row. I'll braze the push-button retainer onto the propeller once I get it pitched just to suit me. I got about six of these old surplus 10-1/2" diameter storm-boat-motor wheels with pitches from seven to fourteen theoretical inches to the revolution. You know it is funny how many people think that the pitch of a propeller is stated degrees when they know damn well that screw thread pitch is in inches per revolution, unless they use the metric system and then they think we are crazy.

I want to rig up a motorcycle style kick starter for the engine, but I already got way too much fooling around time in this rig. I'll put a rope wrapper on the harmonic balancer and a pair of 10' oars under the seat for the time being. The world is an imperfect place, ain't it?

It sure is nice not having to mess around with the outlaw whims of a customer. I may turn amateur

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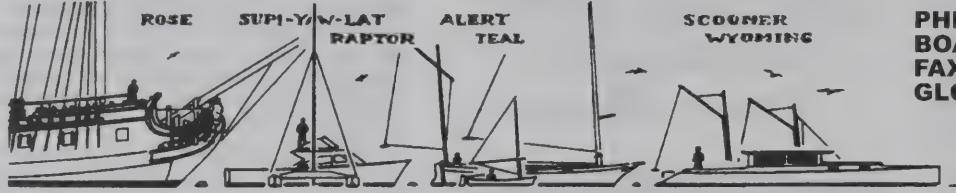
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Whether on the small Micro or larger boats like Loose Moose II, home-building sailing craft often involves dealing with the issue of building and integrating solid ballast into the hull. Most dense is lead, taking up least internal volume for the given weight and requiring relatively low temperatures to melt and pour into shapes suitable for the given application. And many boats have been launched with self-poured lead ballast.

But it still is a daunting task, even on a Micro-size project. To begin with, lead melting is a health hazard for you and others, from burns to toxic fumes. You've got to build a mould to shape, strong enough to withstand heat and weight and of a material that won't retain moisture to dangerously spit and spoil the pour. Whether it is a few hundred pounds or many thousands, and certainly with tens of thousands, of pounds of lead, melting enough lead in a secure crucible/cauldron with enough heat to do the job without overheating the liquid metal, pouring it reliably into many small or one larger shape, accounting for shrinkage during the cooling process, and then moving and attaching it to the hull is an issue that rightly haunts home builders and many professionals alike. Ample stories abound ranging from comic incidents to tragic accidents.

Instead of fretting, some Micro builders, for instance, discovered that getting a foundry to pour your ballast is not that difficult or expensive. Of course, professional builders often farm out the whole issue, particularly if a rich budget full of high-end items makes that

Bolger on Design

Some Notes on External Steel Plate Ballast

cost disappear.

On the other hand, it would be nice to deal with the ballast issue in a way that eliminates much of the drama, uses off-the-shelf material, and, depending on hull shape, even makes it serve double duty. Since many of our sailing craft are Sharpie-shape related with shallow hulls built over strong bottoms almost always flat across amidships, inviting beaching and regular grounding out in tidal situations, it seemed, at long last, sensible to combine using stout sheet-shaped ballast to locate the weight lowest under the hull structure, attached across a large surface area to distribute the loads, protecting the hull proper during these grounding out episodes, not to mention in potentially catastrophic collisions with flotsam and rocks at sea. The most affordable, readily available, durable, easily manipulative sheet material for ballast is, of course, steel. Bronze or copper-nickel plate are even finer options, but typically beyond the justifiable in a home-built craft.

In recent new design projects as well as upgrades such as this one here, we've used

steel-plate up to 1" over plywood hull bottoms as ballast, grounding and beaching shoe, and massive additional impact protection of the softer wooden hull. As long as a complex hull shape is designed with a central grounding shoe, more shapely hulls can benefit from this approach as well such as our 34' cold-molded Volunteer demonstrates.

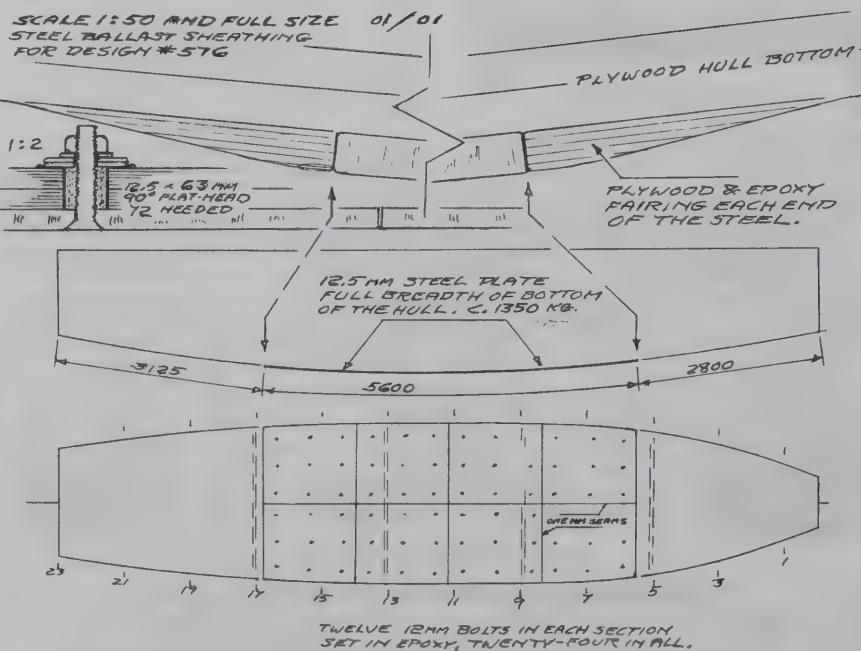
An extreme example of using steel for ballast and grounding shoe is our as yet unpublished 55' x 17' x 2'6" x 60,000+lbs. leeboard auxiliary Walrus which, already designed in steel with a 1/2" bottom skin, ended up with a wide 2" thick center shoe. The shipyard that assembled her bare hull to primer stage earlier this year looked at this detail somewhat askance but disposed of it without much sweat it seemed. There are currently shapes ranging from 30' to 50' in various stages of design that will all carry this type of ballast/bottom protection assembly.

Jean and Gabrielle Gauthier in Quebec are the first to realize this ballast solution on their Loose Moose II project and sent an illustrated report about it. They built the LM2 typical lower section of the hull upside down, chine radiused, fully epoxied and glassed ready to receive the ballast. They decided to put the 1350kg ballast on next to turn the whole assembly over in one piece. We had designed the ballast plate to be eight pieces of 1/2" steel. They chose Corten steel and had the whole steelwork done for \$3200 Canadian. "We think it's a great price for all the protection added to the boat."

They ordered two lifting eyes attached to each of their cut, pre-bent, pre-drilled, and coated ballast sections, allowing each to be easily lowered onto the still inverted hull bottom, bedded, and then through bolted as discussed below. After cutting them off, the remaining patches of bare steel were coated and sealed before turning the hull. Note the slight protrusion of the steel at the chine to protect the hull at the mild penalty of some modest built-in drag from that edge. The actual gap between chine radius and square steel plate surface was filled with suitable glob to minimize that drag. The Gauthiers reported that with careful planning, lots of framing lumber, and six hours of unruled progress, the heavy bottom and ballast assembly was turned over without incident. After a Canadian winter they expect to resume assembly of *Le Cabotin* next spring.

Here now some extracts from the Ballast Building Key for this particular ballast solution on Design #576 Loose Moose II:

Finish the plywood bottom as you would without the steel, covering the wood in glass and epoxy to the level of thickness you would have had without the steel. This will protect the hull long term, no matter what happens with and to the steel over time from groundings, beachings, etc. Incidentally, simply installing the steel may induce scratches in the



ply bottom.

The steel plate is in eight sections to keep expansion and contraction issues to below the $\pm 1\text{mm}$ range. One 34' cold molded hull, our Volunteer design, is intended to be routinely road hauled by her owner in Southern California, and assessing her full length steel grounding/ballast shoe, a full length single piece of steel would indeed have moved way too much between 34°F water temperature and 120++°F on the trailer in the Mojave Desert.

Even without frequent road hauling, LM2's steel plating should be in several sections, with mounting holes in his plywood bottom oversized but filled with flexible sealant under wide washers to allow worst case expansion/contraction scenarios from inducing weeps. In many ways, this through bolting is similar to traditional keel bolt geometries except that between shorter lengths/widths of steel, inherently dry ply/epoxy/glass bottom, and the oversize hole geometry, she should have a very high probability of staying dry for good while putting ballast lowest and de facto armor plating her belly.

With the wooden bottom finish completed in place, the steel plate sections will be applied one by one bedded in 3M 5200 applied in simple long beads along the four edges of each plate and around each through bolt fastening hole to permanently keep water out from between steel and hull and to seal around the bolt holes into the plywood bottom.

We would use the sealant/adhesive just in the narrow perimeter areas to: a) allow eventual removal of worn steel plate (after removal of through bolts, of course) by cutting this sealant sideways to have gravity assist in dropping it off the hull, removing the pieces from bow to stern or vice versa allowing knife access to three of four beads per piece; and, as a positive consequence, b) to use only as much of this expensive material as is really necessary. We would not slather the whole bottom with a layer of it as removal of plate down the line would prove impossible without very serious grief.

The steel plate pieces could either be galvanized for presumably longest life expectancy, or just be treated (after blasting) with a high end epoxy based steel coating. Also discuss with steel vendors the merits of Corten steel for this application. Any one of them would, of course, be unlikely to be damaged in the layer facing the ply bottom while the grounding/beaching effects will damage either galv or painted-on coating. Price the options in your area, as steel is actually quite cheap, and if your steel plate in the most affected section should need replacing a decade or two from now, all depending on frequency of grounding/beachings, location, water temps, and relative salinity, so be it.

Since with regular grounding out on tidal flats, etc., it will be impossible to keep the steel permanently coated and thus non-corroding, consider her steel plate a long-term wear item similar to ropes, sails, paint, etc. Inspection of her bottom in terms of actual corrosion will determine that time frame.

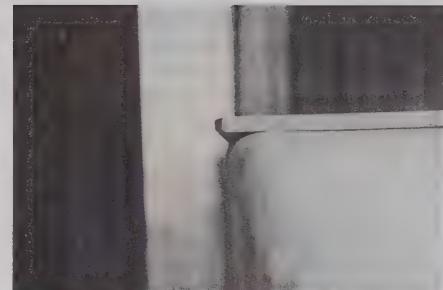
But 12mm steel will take a long time to thin, during which you could gradually, should you notice her getting slightly less stiff with progressive loss of steel weight as the rust flakes off, add a fraction of her overall ballast on the inside in the form of, you guessed it, small sections of scrap steel plate available anywhere around the globe, readily secured



to her framing. By the time you're down to half-thickness, the fasteners look unhappy, and you suspect the 3M 5200 to be the only thing that holds things together, it would be time to discard the plating in favor of a fresh set. That should be a long time off though.

Cost issues: Factor into your overall costs of galvanizing or two-part coating not having to repair her wooden bottom due to grounding abrasion calculating the steel as a hull bottom structure insurance policy, saving on expensive deep water overnight moorings, protecting her from hurricane damage/loss by hiding in the dried out creeks behind the barrier islands, etc., etc. Also factor in not having to pour lead.

We arrived at an eight section assembly as thus each piece is too small to move much at all under severe temperature changes, allows less strenuous handling getting it on the bottom while still remaining smooth once assembled (pre-bent) over the ply bottom, and with 3M 5200 added in between as smooth grout and outside at chine applied to smooth the gap upwards towards her sides.



We don't see how those 72 holes could weep after this treatment. Our oak-on-oak traditionally framed and planked Resolution has thousands of silicone bronze screws below the water-line and she, of course, does not leak at those but rather potentially at each planking seam.

A last nice thing about this outside ballast solution is that should any given LM2 end up light, it is easier now to add some more ballast inside under the floorboards to stiffen her stability further should that seem an advantage after a serious shake-down exercise .



The last piece on design (*Afloat!* Vol. 2 No. 5) was concerned largely with a brief look at canoe sailing rigs which might be fitted for occasional sailing. Since then, *Blues Trio* (DK24) has been launched upon an unsuspecting public on the Martin Pook Design stand at the Wooden Boat Show in Greenwich. Martin rigged his second prototype with a form of batwing sail fitted with a sprit boom. This should be quite efficient for a relatively low aspect ratio rig with the sail area spread well along the length of the mast. In a sense, it is similar in this respect to the first prototype's wing sail which has the same chord (width) throughout the height of the sail. The wing sail came about from a desire to experiment with what seemed like a very simple method of achieving an efficient sail.

The last chapter in an elderly book on model making, *Model Yacht Construction and Sailing*, by Lt. Col. C.E. Bowden, first published in 1950, is on "Wingsail" experiments and it was this which prompted my own version on *Blues Trio*. This very simple collapsible wing sail has aroused some interest, so it seems sensible to explain it in a little more detail. Lt. Col. Bowden makes the point that the fully battened main sail is more efficient than the soft sail because the battens offer a sort of halfway point toward a fully rigid sail akin to an aircraft wing.

Every rig will have some drag, ranging from a probable maximum on a square rigged ship to a minimum on a modern wing sail catamaran, or the less common "Planesail" perhaps. The sailor wishes to minimize drag except when being blown downwind, the more efficient craft will tack downwind to avoid actually running; it being quicker to sail fur-

Back to the Drawing Board

Part 11

By Dennis Davis
Reprinted from *Afloat!*

ther but faster. Reduction of drag is one way in which the rig becomes more efficient in much the same way as aircraft wing has moved from a strut and wire braced structure to a clean cantilever with a wind tunnel determined shape for maximum efficiency and minimum drag.

Using a soft sail there is inevitably some twist in the sail from boom to head. This means that the sail is presenting a different angle of attack to the apparent wind at the bottom as compared to the top of the sail, thus it cannot be equally efficient throughout its height. To some extent the sailor is able to improve this by having a kicking strap or, on modern rigs a rod system, to flatten the sail to try to give a more similar angle of attack along the full height of the sail. So the first improvement the wing sail has to offer is an equal angle of attack along its height, thus reducing the drag inherent in a twisted sail.

Now making a rigid wing sail is straightforward enough but is likely to be a problem for transporting and for rigging, especially single-handed. It also has the problem that it will be, of necessity, symmetrical and so not as efficient as an asymmetrical sail which will produce greater lift. I am ignoring here the special case of the *Buga Luga* asymmetric wing sail described in *Afloat!* Vol. 2 No. 1 (cover drawing Vol. 1 No. 5). The soft, collapsible wing sail solves both problems in one move, for when it is correctly "feathered" into the wind, its leeward side will form an airfoil shape determined by the curve of the ribs which give shape to the sail while the windward side will take up a concave curve between the ribs created by the positive pressure of the wind.

The effect is to produce an efficient asymmetric wing sail with no twist and, because it

is partially balanced, virtually no sheet loads. The latter means that no multiple sheet blocks are required thus, reducing drag still further. In practice the *Blues Trio* sail is not as efficient as it might be because of structural defects on the prototype. For example, the top rib of the sail, although stiffened, does still sag a little toward its leach. This means that the leach of the sail is less taut than would be ideal. Because the ribs have to be slid along the mast they are, of necessity, a little loose thus the sail does have a very small amount of twist in use.

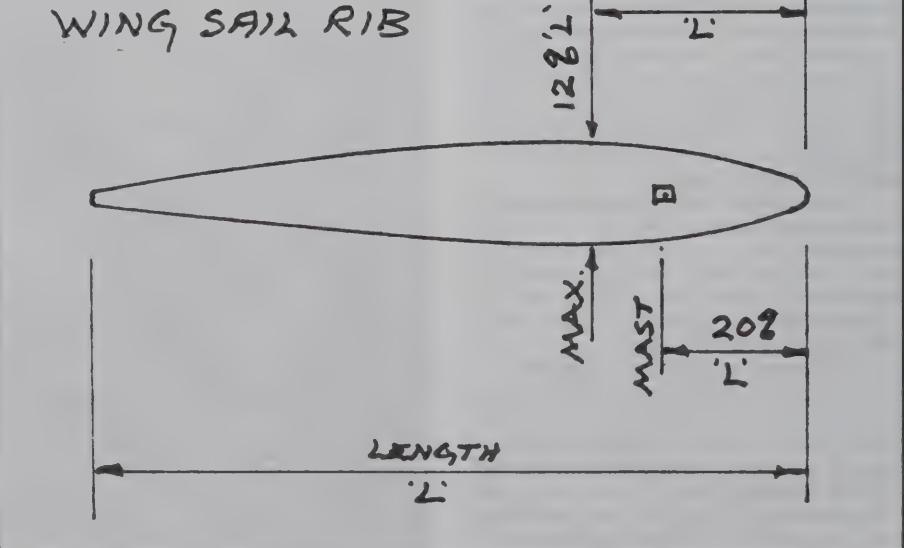
Also, to allow the sail to be drawn fairly easily over the mast and ribs, it is probably a little looser than is strictly desirable so it takes up rather too constricted a shape on its windward side. This might be improved, too, by having the sail made from slightly more substantial cloth; the prototype being made from very light rip-stop nylon. However, even with these defects the wing sail does seem to work quite efficiently with a minimum of effort on the part of the helmsman. In fact, because the sheet loadings are so small, it is actually quite difficult to know when the sail is trimmed, feathered, at its best angle; it not being possible, of course, to see the leeward side of the sail to check when it is "working" across the whole area. When only part of the sail is working the remainder of the working (leeward) surface is at least partially stalled, thus creating drag, but even in this state the trimaran will move at a respectable pace. Some form of apparent wind indicator is obviously necessary, possibly mounted on the extreme bows of the main hull where it will be in clear air. It would be interesting to test sail a soft wing sail on a one-design hull against a conventional sail of similar size on the same type of hull.

(To Be Continued)

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When I first designed and built my Jozebote flat-bottomed kayak, I bought a good quality spoon blade paddle and went happily on my way around the Great Lakes, East Coast, and Chesapeake Bay. But as time went on, I observed that once inertia was overcome, keeping an easily driven hull going at maximum speed didn't need anywhere near as much paddle surface as I was dipping into the water. I was simply pushing an unnecessarily large blade area against the weight of water.

I looked at a lot of lightweight paddles, some with comparatively narrow blades, some made of super-light materials, and all with bigger price tags than I could handle. And so Second Gear was begun as a drawing.

Scott Gearhart and I bought four pieces of clear 1x4x8 lumber (some sort of fir) which we laminated to a 2x4 dimension. We could have started with a good 2x4, but the laminated combination is far stronger. We paid \$15 each.

We bandsawed out the basic shapes, then finished our paddles with plane, spokeshave, and sandpaper. Weight before painting was 36 ounces. The final dimensions wound up at 12" blade length, 3-1/2" width, 3" heel between blade and shaft, the latter with a 1-1/16" dia-

The Fifteen Dollar Second Gear

By Joe Reisner

meter.

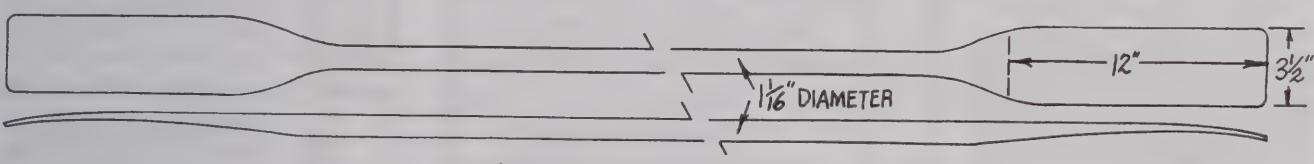
The blades have spoon shapes, but we made no other attempts to match conventional shapes. The blades are simple rectangles with blunt ends, reminiscent of the old British Seagull outboards with their big five-blade propellers with square tips and hardly any pitch. It was wonderful to watch one of those little one-cylinder engines pushing some huge, inappropriate load.

Basically, the same hydrodynamic principle that worked for the Seagull works for Second Gear, what's (erroneously) called slip. It shows up when an engine/propeller combination allows energy to be thrown off to the side rather than being used to thrust the vessel forward. Tugboats are designed with slip, sometimes as much as 75% of input energy.

Slip is actually vector force and it's essential to driving power. But what's important to someone applying the principle to a hand-operated kayak paddle is that some slip makes it possible to move a kayak on a long trip with the least amount of effort. It's analogous to shifting down to a low gear when pedaling a bike uphill. Sure, you pedal faster, but much more easily; hence the name, Second Gear. But what neither Scott nor I expected was that we could still get underway fast, keep up with the rest of the fleet, and get involved in impromptu sprints with the best of the traditional paddle people.

I've used my Second Gear for three long seasons and it has been used hard! It pushes me off gravelly beaches, doubles as a boat hook (jammed between planks on a dock), and has been used as an emergency crowbar. Scott finished his paddle beautifully with wet sanding and varnish. Mine got a coat of linseed oil. Period. It's holding up great in and out of the water and the hand grip is very comfortable. And all for fifteen bucks!

A full size pattern for the blade shapes, along with some helpful suggestions, is \$5 postpaid from Joe Reisner, 9600 Seventeen Mile Road, Marshall, MI 49068.



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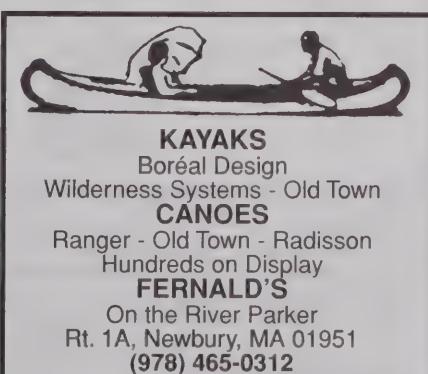


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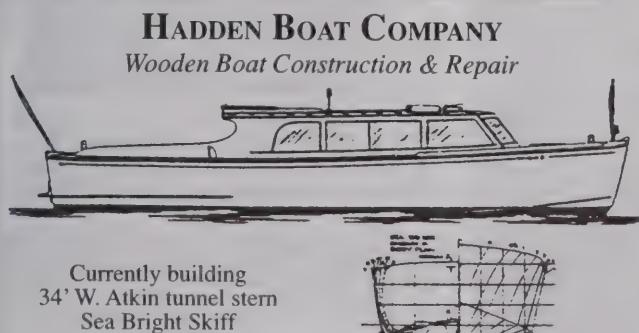
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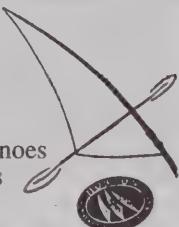
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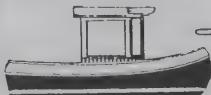
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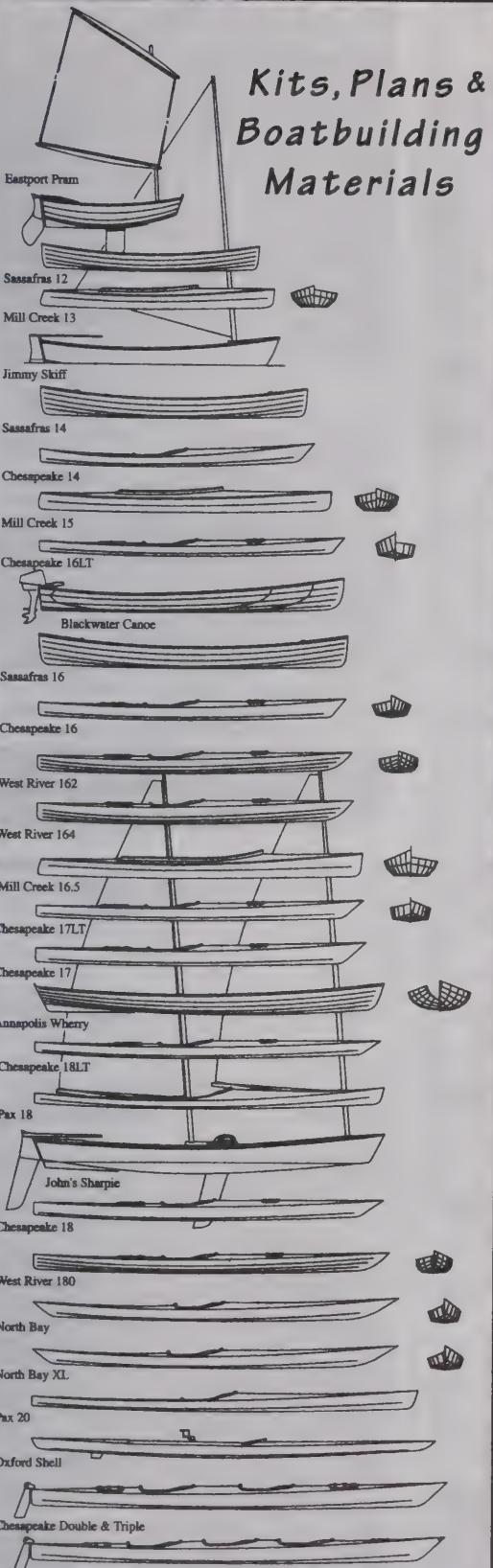


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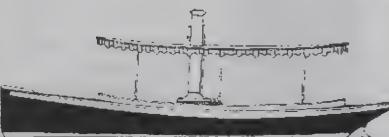


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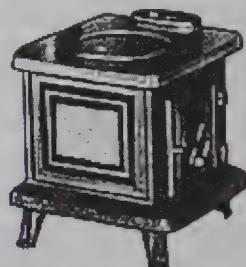
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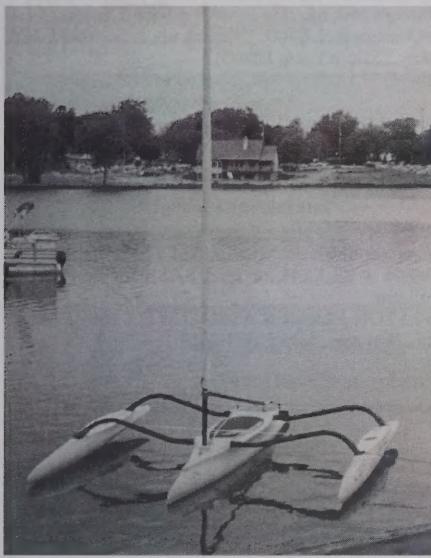
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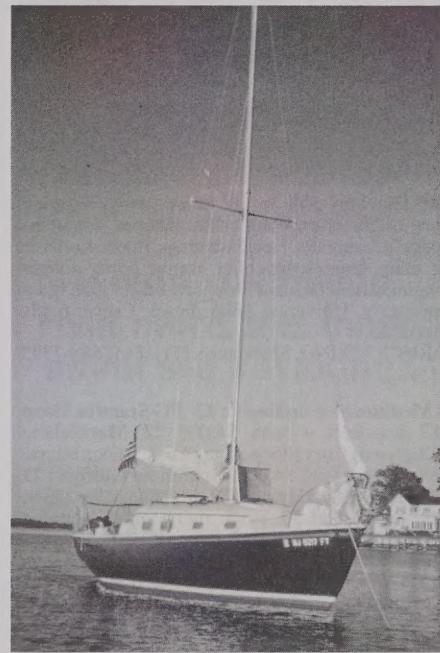
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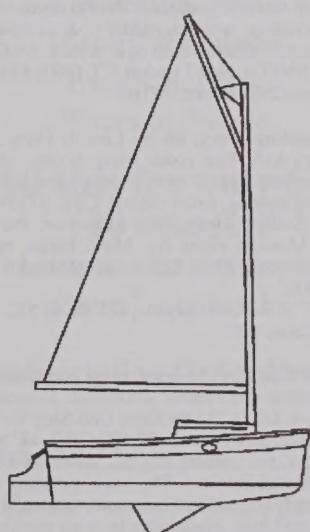


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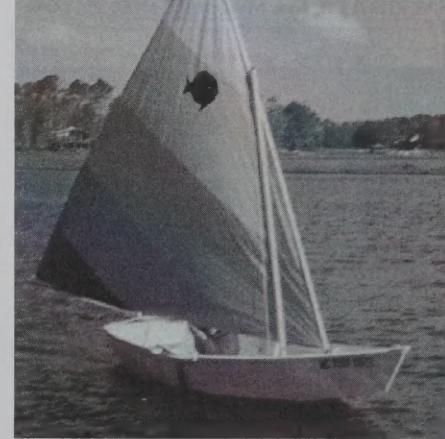
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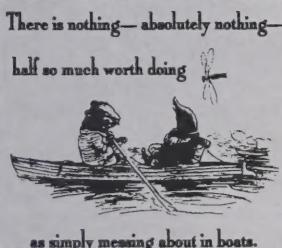
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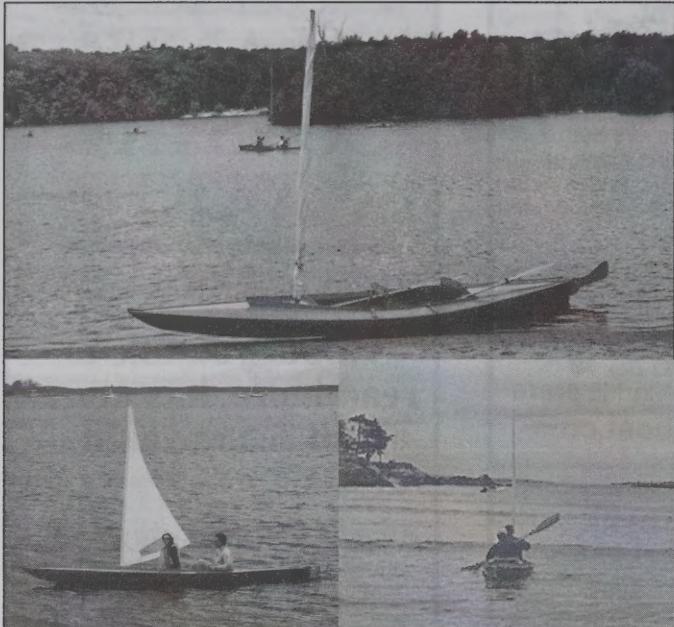
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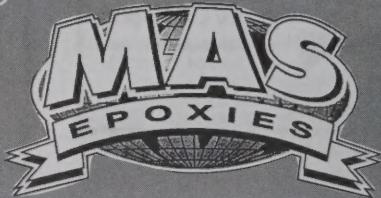
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